



Towards a Data Union Strategy

Shaping Digital Sovereignty in Europe

Open Geospatial Consortium (OGC) Innovation Days,
Bad Nauheim, 10 December 2025

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OGC Europe Forum Co-Chair / ISO-TC211 EC liaison

Joint
Research
Centre

European priorities

The goals ahead

European Commission Political Priorities 2024-2029



[A new plan for Europe's sustainable prosperity and competitiveness](#)



[A new era for European defence and security](#)



[Supporting people, strengthening our societies and our social model](#)

https://commission.europa.eu/priorities-2024-2029_en



[Sustaining our quality of life: Food security, water and nature](#)



[Protecting our democracy, upholding our values](#)



[A global Europe: Leveraging our power and partnerships](#)



[Delivering together and preparing our Union for the future](#)

European Commission Political Priorities 2024-2029



A new plan for Europe's sustainable prosperity and competitiveness



Boost productivity with digital tech diffusion

- Encourage investments in digital infrastructures to improve access to secure, fast and reliable connectivity.
- Continue to step up our enforcement of the EU digital laws.
- Step up investment in high-value technologies (supercomputing, IoT, quantum computing, semiconductors, genomics, space technologies...)
- Ensure access to supercomputing capacity for AI startups and industry via an [AI continent action plan](#).
- Boost new industrial uses of AI and improve public services.
- Ensure seamless, high-quality and at-scale data sharing with a [European Data Union Strategy](#) (Build on the earlier [European Data Strategy](#)).

Put research and innovation at the heart of our economy

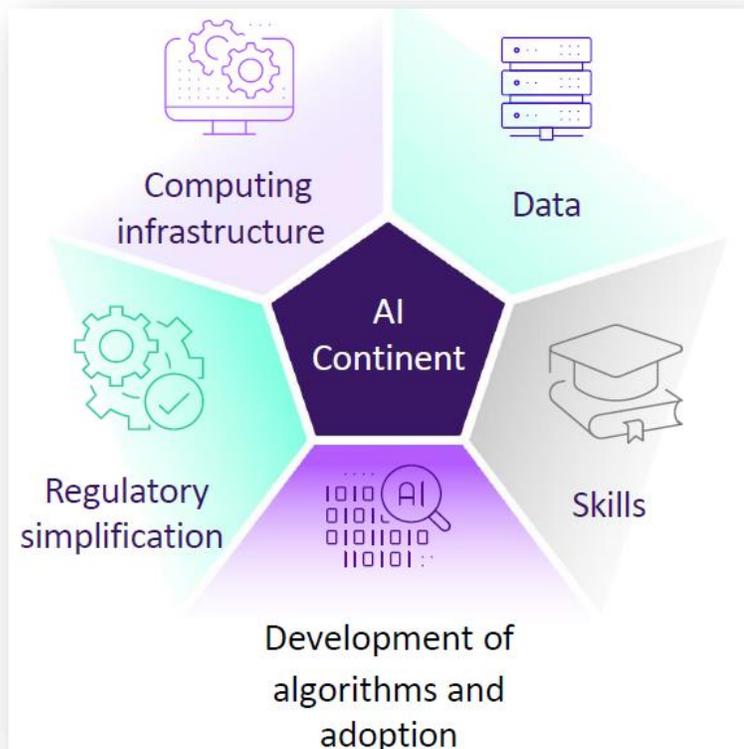
- Increase research spending to focus more on strategic priorities.
- Support green and digital transitions by developing high-value technologies.

European Commission Political Priorities 2024-2029



AI Continent Action Plan Making Europe a Global AI Leader

Roadmap to position Europe as a global frontrunner in artificial intelligence



AI Factories & Giga Factories

- Equipped with state-of-the-art computing resources

Data Labs

- Integrate & organise data from different sources
- Linked to EU Data Spaces
- Provide sovereign cloud data-related services

Data Union Strategy Unlocking Data for AI

Ensuring access to high-quality data for AI development



Brussels, 19.11.2025
COM(2025) 835 final

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN
PARLIAMENT AND THE COUNCIL

DATA UNION STRATEGY
UNLOCKING DATA FOR AI

<https://eur-lex.europa.eu/legal-content/ES/TXT/?uri=COM:2025:835:FIN>

EU data sharing

What was achieved so far

INSPIRE 1.0

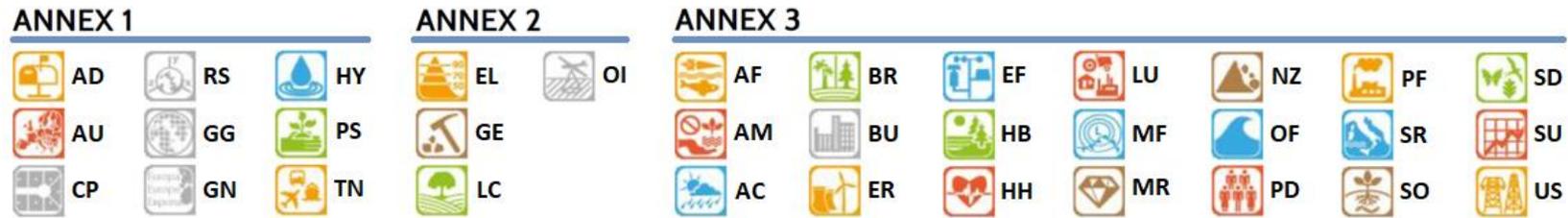
EU data sharing experience

INSPIRE 1.0

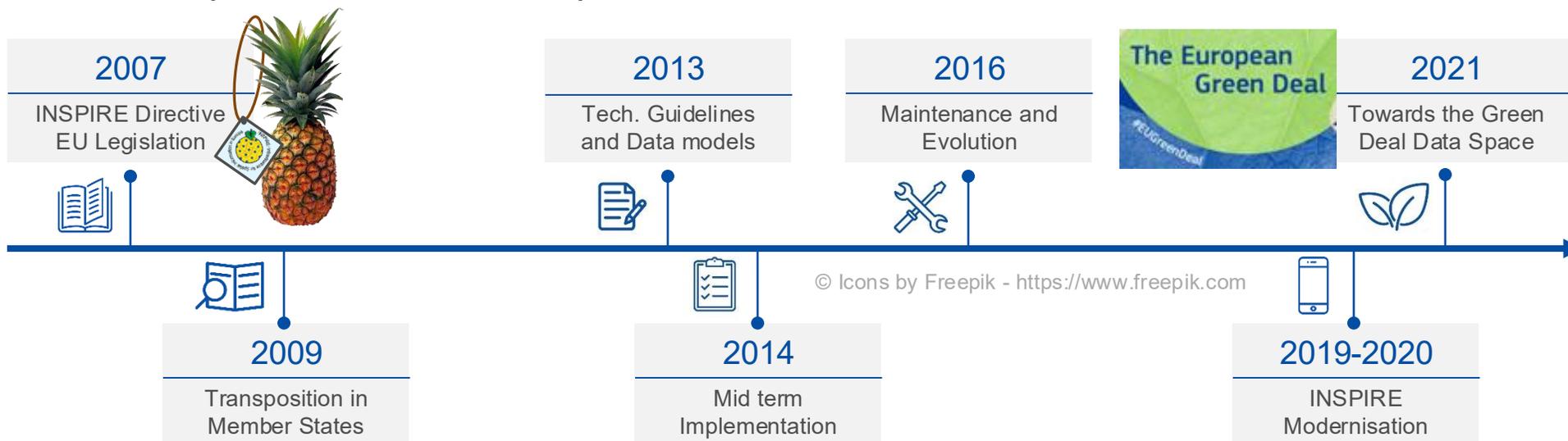


European Spatial Data Infrastructure

- Sharing of interoperable metadata, data and services across EU.
- Thematic domains: 34 spatial data themes



- Implementation roadmap:



Multi-faceted SDI

Perspectives:

- Legal.
- Organisational.
- Technical.

Implementation status

Lights and shadows.

- Objectives partially achieved.
- Heterogeneity of implementations across EU.
- Pan European coverage yet to be achieved.

EU data sharing experience

INSPIRE 1.0 – Lessons learnt



- Worked 😊
 - Data availability
 - Community
 - Ecosystem of Open-Source tools
- To be improved 😞
 - Interoperability through prescription
 - Rigid (legal & technical) framework
 - Data provider-centric governance



Image generated through Artificial Intelligence

EU data sharing

How it may look like in the future

INSPIRE 2.0 / Green Deal Data Space / ...

EU data sharing future options

Approaches



- **Iterative interoperability**
 - Use-case driven, based on real needs
 - Start with minimal requirements
 - Incentivise higher levels of interoperability
- **Inclusive data governance model**
 - Multiple actors / Co-creation
 - Living ecosystem
 - Bringing knowledge and digital innovation
- **Alignment to Open Data**
 - High-Value Datasets & Environmental priorities



Image generated through Artificial Intelligence

EU data sharing future options

AI-readiness



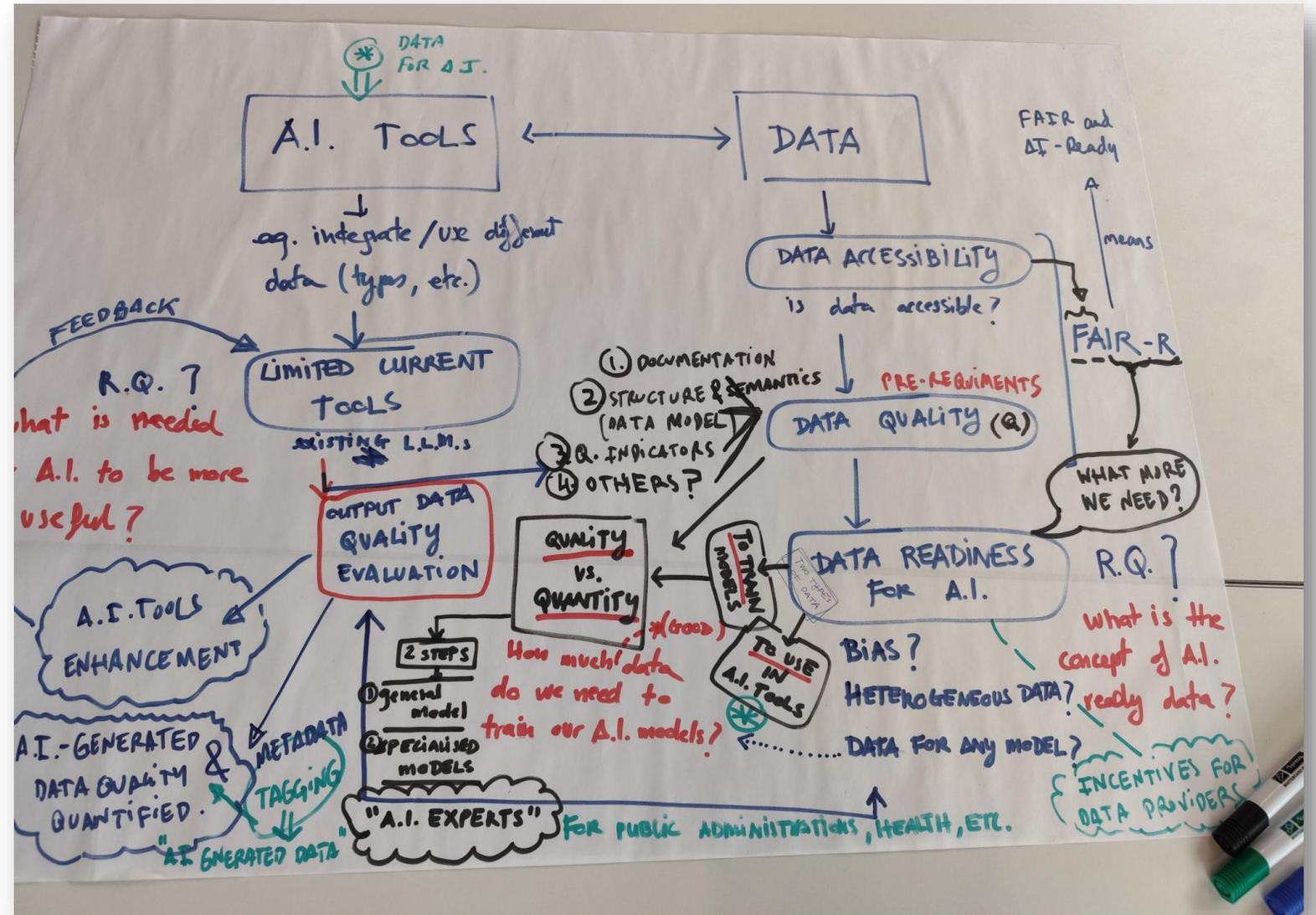
• AI-ready data

Understanding what it is

- Documentation
- Structure and semantics
- Provenance & Quality
- Others? (e.g., standards)

• AI-generated data

- Quality evaluation
- AI tools enhancement
- Capacity to achieve Interoperability



Towards data sovereignty

JRC.T4 research

JRC.T4 team – Research on data sharing + Digital Sovereignty



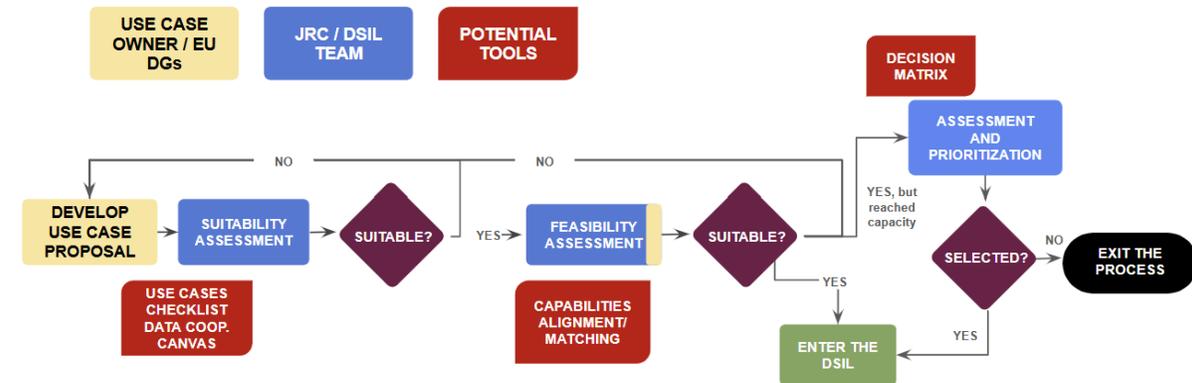
- **Towards a Common understanding of EU Digital Sovereignty**
 - EU Digital Sovereignty is intended as the EU's **capacity of exercising its independence in the digital domain while remaining open and connected to global networks.**
 - It focuses on the **ability to decide, invest, and innovate according to European values** of democracy, openness, and the rule of law.
 - Rather than implying isolation or protectionism, we describe Digital Sovereignty as **strengthening EU skills, infrastructures, and governance** to ensure that digital transformation **supports competitiveness, resilience, and trust.**

JRC.T4 team – New tools

Data Sharing (+Sovereignty) Innovation Lab



- Technical and governance experiments based on preselected policy-relevant use cases
- **Toolbox:** European cloud instances, stack of technical components, methods and approaches
- **Research topics** - Selection criteria
 - Clear policy demand and alignment with EC priorities
 - Evidence of potential societal, economic, or environmental benefits
 - Involvement of more than one stakeholder
 - Focus on data reuse
 - Comply with ethical, legal, sovereign and privacy norms and values
 - Measurable outcomes

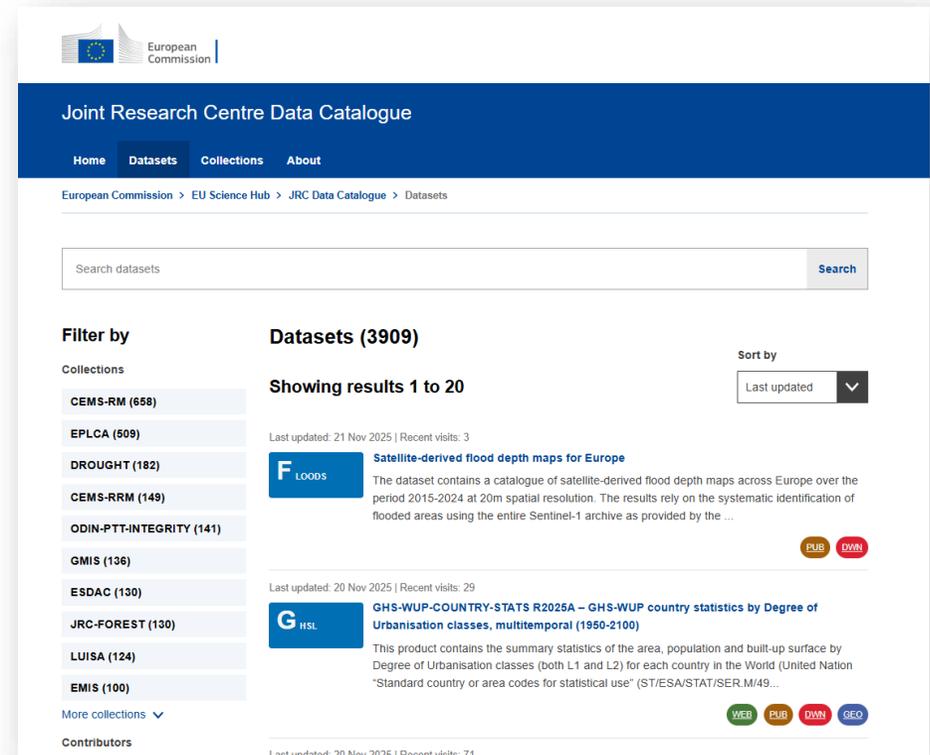


Relevant activities

FAIR data sharing: Guidelines



- Guidelines to support and enhance the FAIRness of (JRC) data



<https://doi.org/10.2760/5646214>

Relevant activities

FAIR data sharing: ISO & GeoDCAT pilot



- Support the alignment of INSPIRE to Open Data
 - Transformation of INSPIRE / geospatial metadata to an Open Data format: (Geo)DCAT-AP
 - Community shared experiences & common solutions for identified issues
 - Metadata tagging to improve filtering in data.europa.eu
- Participating Member States (Phase 1)
- EU level leadership (ENV, OP, DIGIT, JRC)



<https://github.com/INSPIRE-MIF/GeoDCAT-AP-pilot>

<https://data.europa.eu/doi/10.2760/9289518>

Relevant activities

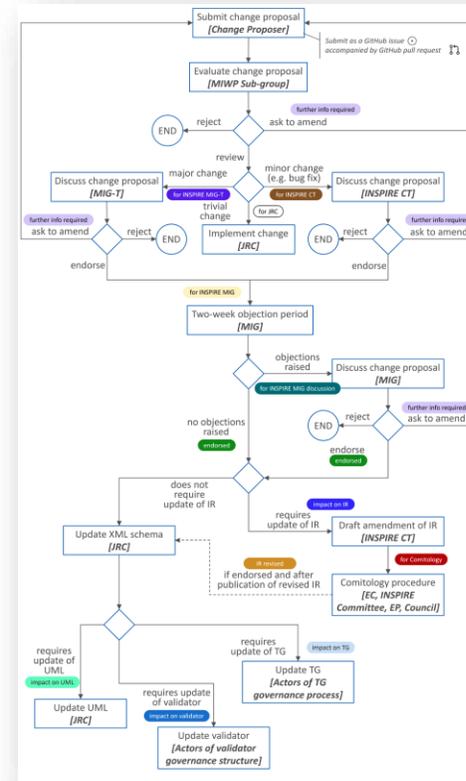
FAIR data sharing: Interoperability and Accessibility



- Collaborative governance of semantic / technical assets for geospatial data

<https://github.com/inspire-mif>

- Technical guidelines
- Application schemas
- Open source tools
- Good practices



REITZ, T., ESCRIO, J. and MINGHINI, M., Interoperability Approaches for environmental data sharing and reuse in the European Union, Publications Office of the European Union, Luxembourg, 2025

<https://publications.jrc.ec.europa.eu/repository/handle/JRC138573>

Relevant activities

AI for data sharing



- Support the automation of metadata generation through AI-assisted tools

European Commission
Joint Research Centre Data Catalogue

Home Datasets Collections About

European Commission > EU Science Hub > JRC Data Catalogue > Datasets

Search datasets

Filter by Collections

Datasets (3909)

Showing results 1 to 20

Sort by Last updated

CEMS-RM (658)
EPLCA (809)
DROUGHT (182)
CEMS-RRM (148)
ODIN-PTT-INTEGRITY (141)
OMIS (126)
ESDAC (120)
JRC-FOREST (120)
LUIA (124)
EMIS (100)

More collections

Contributors

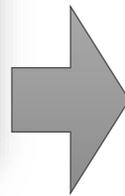
Last updated: 21 Nov 2025 | Recent visits: 3

Floods Satellite-derived flood depth maps for Europe
The dataset contains a catalogue of satellite-derived flood depth maps across Europe over the period 2015-2024 at 20m spatial resolution. The results rely on the systematic identification of flooded areas using the entire Sentinel-1 archive as provided by the ...

Last updated: 20 Nov 2025 | Recent visits: 29

GIS DHS-HUP-COUNTRY-STATS-R2015A - DHS-HUP country statistics by Degree of Urbanisation classes, multitemporal (1950-2100)
This product contains the summary statistics of the area, population and built-up surface by Degree of Urbanisation classes (both L1 and L2) for each country in the World (United Nation Standard country or area codes for statistical use) (STESASTATSER.M49).

Last updated: 20 Nov 2025 | Recent visits: 71



Extracted Metadata Fields

Schema: GeoDCAT-AP 3.0.0 - Geographic extension of DCAT-AP for spatial datasets

26 Total Fields

9 Type A (A1)

8 Type B (Auto)

9 Type C (Policy)

15 With Candidates

Validate Metadata

Export as Turtle

Export as RDF/XML

Export as JSON-LD

Access Rights **Type C**

Information about who can access the Dataset or an indication of its security status.

No value extracted

Add Value

Attribute Schema **Type B** 1 source

Description of the attribute schema (fields and types).

Extracted Value **Auto-extracted**

NAME: String, CATEGORY: String, POP: Real, MS: String, FUA: Integer

Bounding Box **Type B** 1 source

Geographic bounding box of the Dataset (minX, minY, maxX, maxY).

Extracted Value **Auto-extracted**

1547000.0,942000.0,6526000.0,5307000.0

AI-assisted Metadata Editor

Intelligent Metadata Creation for Geospatial Datasets

Session Connected: 363474d2

Metadata Schema Selection

Choose the metadata standard for your dataset

Schema: GeoDCAT-AP 3.0.0 - 26 attributes

Geographic extension of DCAT-AP for spatial datasets
View Specification

Upload Geospatial Dataset

Upload your geospatial data file (.gpkg, .shp, .geojson, .tif, etc.)

Choose File No file chosen

Upload Dataset

Upload Documents

Supported formats for metadata extraction (policy and supporting documents will be auto-detected): PDF, Word, Text, Markdown, HTML, XML, JSON, JSON-LD, RDF, CSV (Turtle, N3, N-Triples, RDF/XML)

Source: M. Di Leo

European Commission

GPT@JRC

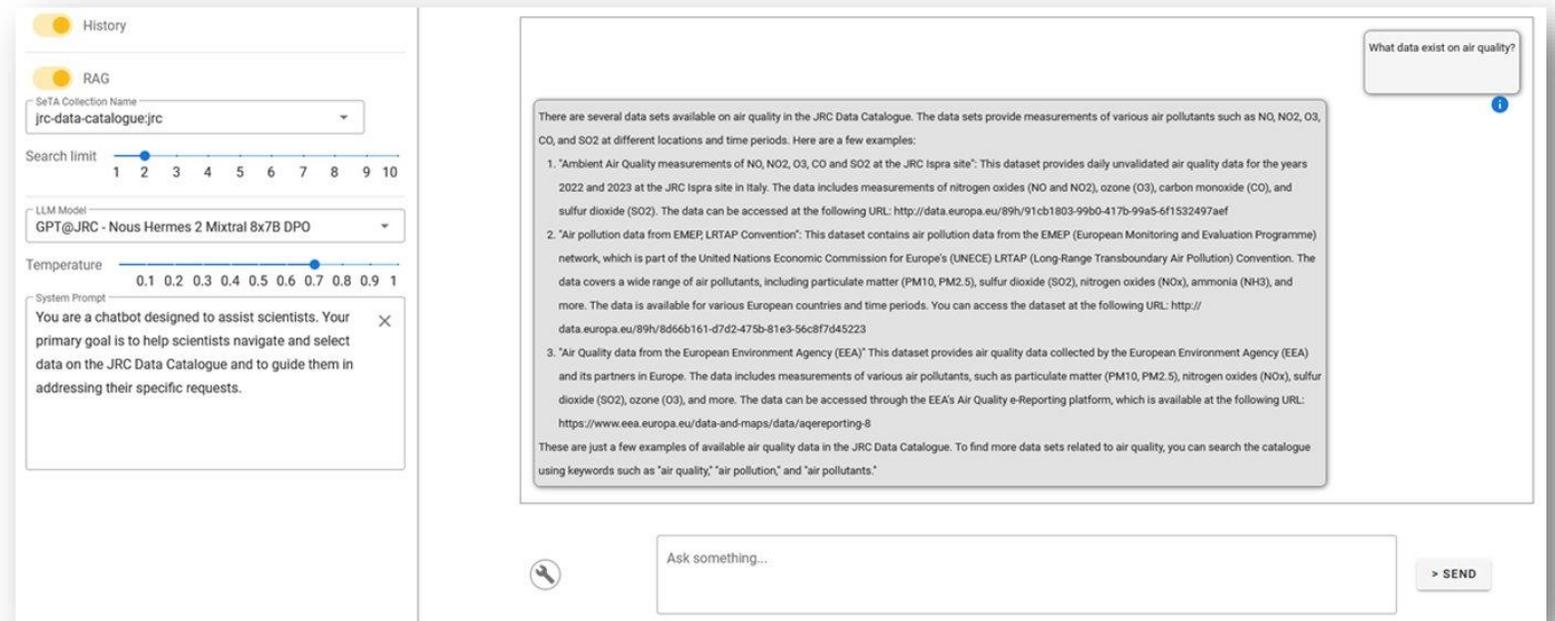
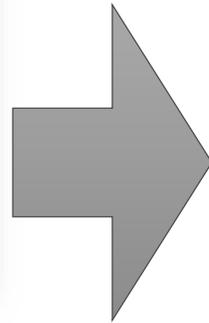
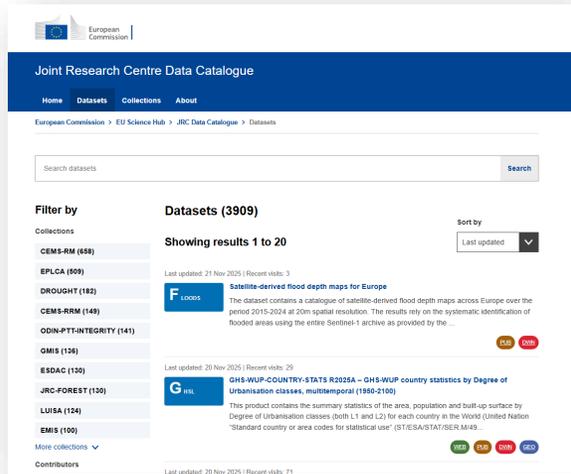
In-house technical enablers

Relevant activities

AI for data sharing



- How AI and semantics converge to advance data sharing, automation, and interoperability across Europe: semantic search
- AI-ready data served through APIs (possible use of semantic text analysers to get unstructured data ready), use of LLMs and Model Context Protocol architecture for processing, user interface for querying.



Session
AI and the future of semantics and data interoperability

Source: F. Cabras, L. Gabrielli



Relevant activities

Data for AI: Synthetic data & Privacy preservation

- Synthetic data

- Generated using microdata
- Preserving statistical distributions
- Personas instantiated through LLM
- Substitute / complement existing data



<https://publications.jrc.ec.europa.eu/repository/handle/JRC138521>

- Privacy preservation

- Access to data for AI without compromising privacy
- Evaluation of
 - Maturity
 - Deployment strategies & trade-offs
 - Availability of solutions, e.g.
 - Federated learning
 - Data visiting

<https://publications.jrc.ec.europa.eu/repository/handle/JRC134350>

<https://publications.jrc.ec.europa.eu/repository/handle/JRC141298>



OGC Europe Forum

Topics for the next forum session

Next OGC Europe Forum

Topics of interest



- OGC Community!

Share your interests
for the next OGC
Europe Forum

June 2026, Helsinki

The screenshot shows the OGC Agora community interface. On the left is a navigation sidebar with the 'Agora' logo and a list of categories: Feed, Welcome (Start Here, Welcome checklist, Say hello (55), Using Agora (4)), Community (What's new (87), Events (11), Opportunities (7), Compliance (1), Showcase (3), Ask the community (9), Developers (1)), and Spaces. The main content area shows a post titled 'Topics for the next OGC Europe Forum in June 2026' by Jordi Escriu, Scientific Project Officer - Data Governance and Services Unit. The post text states that the OGC Europe Forum was reactivated at the 131st Member Meeting in Rome (3-6 March 2025) and provides a list of topics for discussion:

- Requirements for different types of data sharing ecosystems, focused on geospatial, mainly in the European context (e.g. European Data Spaces, Digital twins, Gen-AI).
- Identification of geospatial standards needs satisfying these requirements (provide evidence for developing new standards, gap analysis, standard updates, etc.). What works, and what does not work, in the current technological landscape.
- Provision to OGC Members of examples on existing implementations addressing the different challenges posed.
- Exchange of views and discussion on related challenges.

Two sessions were offered focused on European Data Ecosystems, the first one on Requirements and the second one on Example implementations.

<https://agora.ogc.org/c/ask-the-community/topics-for-the-next-ogc-europe-forum-in-juny-2026>

Thank you



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