Food and Agriculture Organization of the United Nations

Is there a role for the European Soil Partnership in contributing to the data in EUSO?

Maria Fantappiè, Fenny van Egmond, Rainer Baritz
maria.fantappie@crea.gov.it
fenny.vanegmond@wur.nl
rainer.baritz@eea.europa.eu

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GLOBAL SOIL PARTNERSHIP

European Soil Partnership

= one of the 7 regional soil partnerships under a global umbrella

… is a network of country focal points (and the EU) and other interested members of the Global Soil Partnership (GSP) from Europe

	2016	2021
Country focal points (+EU)	37	55
Other members	88	149

Other European networks cooperating with the ESP: 50

… **depends on** engaged country experts, ongoing research projects, partnering networks, to engage in GSP- and ESP-specific tasks

… operates in **five pillars eq. action areas** (soil management, awareness, research, information development, and harmonization) eq. **5 regional Pillar Working Groups**

… currently 3 subregional partnerships, 5 national soil partnerships

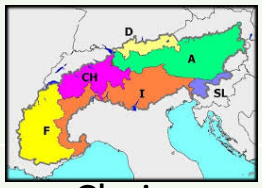
European Soil Partnership
subregional and national soil partnerships

EASP

Subcontinents/ countries

Biogeographic/ cultural/political regions

AlpSP



Chair, coordination unit,
5 Pillars with chairs

PyrSP

Chair, vice-chair, secretariat,
5 Pillars with chairs

Chair, vice chair, secretariat
working groups *(soil information, soil awareness,* soil *degradation)*

ISP Italian national soil partnership (link)
SPT Slovenian national soil partnership (link)

PSP Portuguese national soil partnership (link)
SSP Slovakian national soil partnership (link)
USP Ucrainian national soil partnership (link)

European Soil Partnership

ESP Activities

Content

Plenaries/ workshops

Network building

- European members of the International Network of Soil Information Institutions (INSII) 1st meeting 4th February 2021
- European Network of Soil Laboratories (EUROSOLAN): 3rd meeting 27 October 2021

- Europe-Chapters of the Status of the World Soil resources Report (2015 and 2025), and the Global Soil Pollution Assessment (2021)
- **National GSP data products**: soil carbon distribution (GSOC), soil carbon sequestration (GSOCseq), salinization (GSSmap) (*erosion in preparation*)
- Development of national soil accounts/statistics from spatial indicators for SoilSTAT (*in discussion*)
- Currently: European Soil Condition Assessment (with EEA, JRC, DG ENV, EIONET and an open network of contributors)
- National and local World Soil Day celebrations
- European regional guideline for sustainable soil management (*planned*)

Pillar 4 & 5 Objectives*

Build an enduring and authoritative system for monitoring and forecasting the condition of the Earth's soil resources (…) to meet international and regional information needs

Build on national and within-country systems through a collaborative network and the distributed design

The global soil information system should include a training program

Integrate the global soil information system into the much larger effort to build and maintain the Global Earth Observing System of Systems (GEOSS)

Providing mechanisms for developing and exchanging globally consistent and comparable harmonized soil information.

* From the global implementation plan 2017-2020, but they are still valid

Pillar 4 and 5 – DELIVERED

Soil property maps (grids) - Coarse- (1 km) grids of soil properties/indicators: **GSOCmap**, **GSOCseq**, **GSSmap**.

Country-driven approach: elaboration locally according to specific structural (grids) and semantic (related to the domain) requirements and communicate to a central node that combines (manually or automatically) local contributions in wider (global) maps.

Country-SIS online survey: Does your country have: **1)** Digital databases of soil properties? **2)** Soil Information System (web-gis)? **3)** Digital soil monitoring system?]

GLOSIS: Global Soil Information System infrastructure

The training program to support countries in the establishment of GLOSIS and in the elaboration of the Soil property maps (grids)

GLOSOLAN-(EUROSOLAN): world (eu)-laboratory network for international lab methods standardization and harmonisation (also spectral libraries) … ongoing

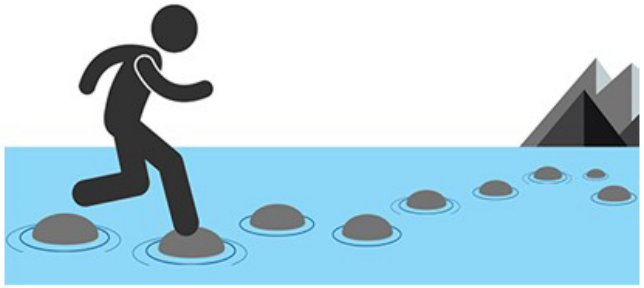
Short & long term goals

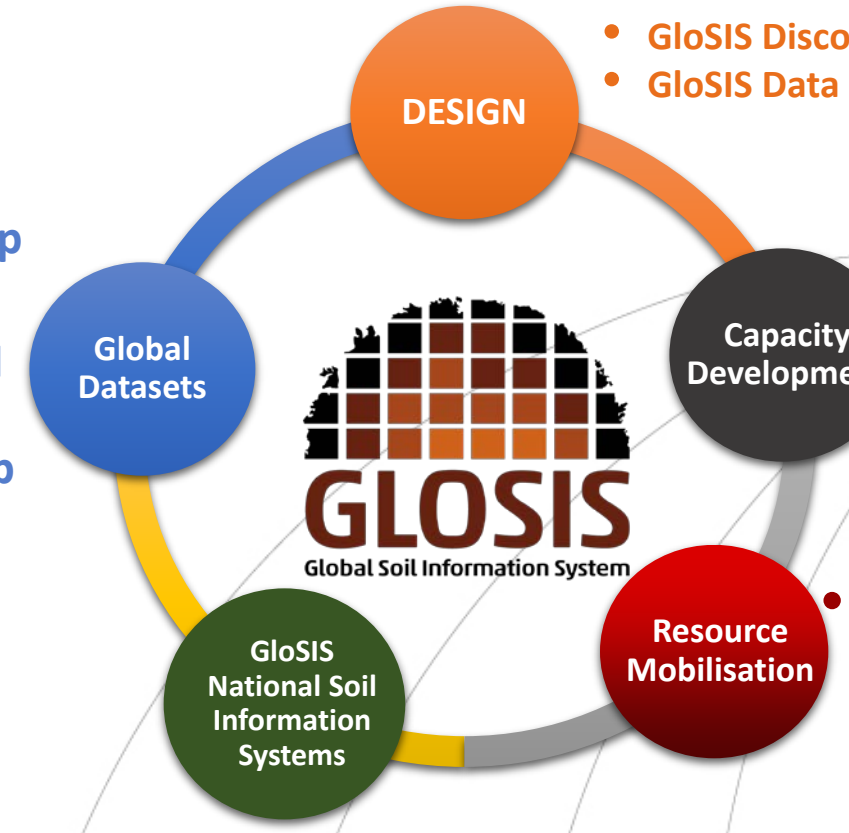
GloSIS 1.0

Short-term goal: Help countries in organizing and sharing their existing data. Create a SIS that increases findability and accessibility of data

GloSIS 2.0

Fully fledged platforms (NSISs & GloSIS DH) for harmonized data storage and exchange with several add-ons/plug-ins using standards and the latest IT solutions for optimal functionality.





- GloSIS Discovery Hub
- GloSIS Data Exchange

- GSOCmap
- GSSmap
- GSOCseq
- GBSmap
- GSERmap
- ...

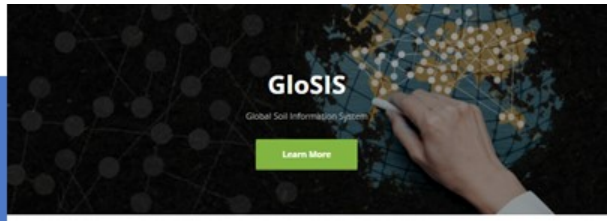
- Trainings
- Product Guidelines
- Technical Manuals

- Regional & National TCP Projects

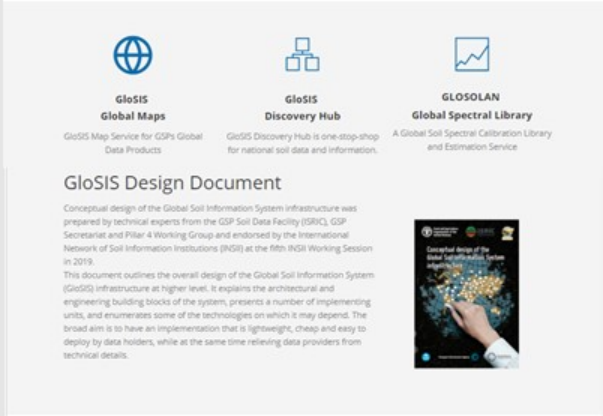
- Regional, National, Institutional Soil Information Systems

Discovery Hub

One stop shop for global soil data at https://glosis.org/

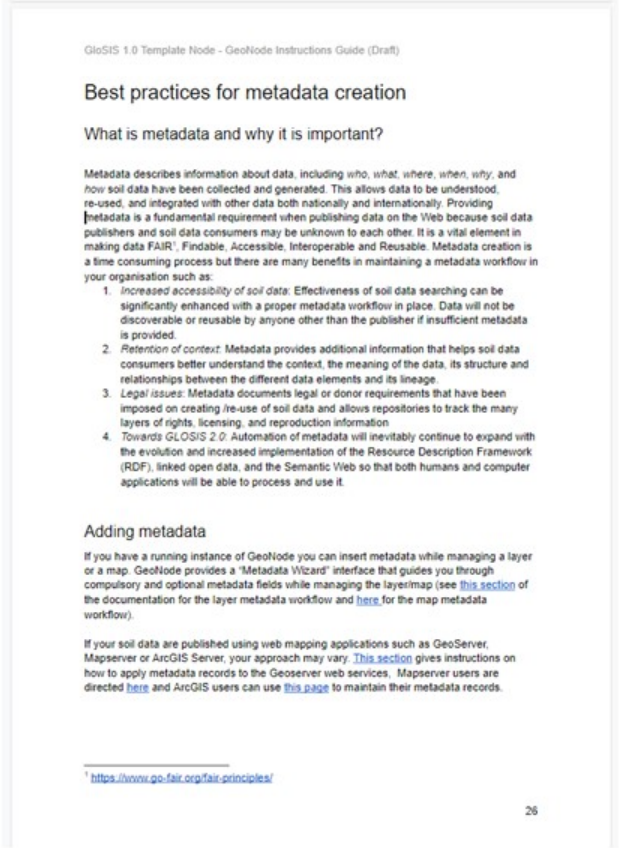


- Discovery Hub v1 is deployed
- 9 countries connected: *Argentina, Armenia, Canada, Colombia, Macedonia, Sudan, Thailand*
- Works best when metadata are filled in at NSISs!
- Will include global country-driven maps, NSIS data and the global soil spectral library icw GLOSOLAN



Please get in touch with us, so we can connect your SIS!

Metadata best practice guide



GloSIS 1.0 Template Node - GeoNode Instructions Guide (Draft)

Best practices for metadata creation

What is metadata and why it is important?

Metadata describes information about data, including *who*, *what*, *where*, *when*, *why*, and *how* soil data have been collected and generated. This allows data to be understood, re-used, and integrated with other data both nationally and internationally. Providing metadata is a fundamental requirement when publishing data on the Web because soil data publishers and soil data consumers may be unknown to each other. It is a vital element in making data FAIR[1]: Findable, Accessible, Interoperable and Reusable. Metadata creation is a time consuming process but there are many benefits in maintaining a metadata workflow in your organisation such as:

1. *Increased accessibility of soil data*: Effectiveness of soil data searching can be significantly enhanced with a proper metadata workflow in place. Data will not be discoverable or reusable by anyone other than the publisher if insufficient metadata is provided.
2. *Retention of context*: Metadata provides additional information that helps soil data consumers better understand the context, the meaning of the data, its structure and relationships between the different data elements and its lineage.
3. *Legal issues*: Metadata documents legal or donor requirements that have been imposed on creating /re-use of soil data and allows repositories to track the many layers of rights, licensing, and reproduction information
4. *Towards GLOSIS 2.0*: Automation of metadata will inevitably continue to expand with the evolution and increased implementation of the Resource Description Framework (RDF), linked open data, and the Semantic Web so that both humans and computer applications will be able to process and use it.

Adding metadata

If you have a running instance of GeoNode you can insert metadata while managing a layer or a map. GeoNode provides a "Metadata Wizard" interface that guides you through compulsory and optional metadata fields while managing the layer/map (see this section of the documentation for the layer metadata workflow and here for the map metadata workflow).

If your soil data are published using web mapping applications such as GeoServer, Mapserver or ArcGIS Server, your approach may vary. This section gives instructions on how to apply metadata records to the Geoserver web services. Mapserver users are directed here and ArcGIS users can use this page to maintain their metadata records.

[1] https://www.go-fair.org/fair-principles/

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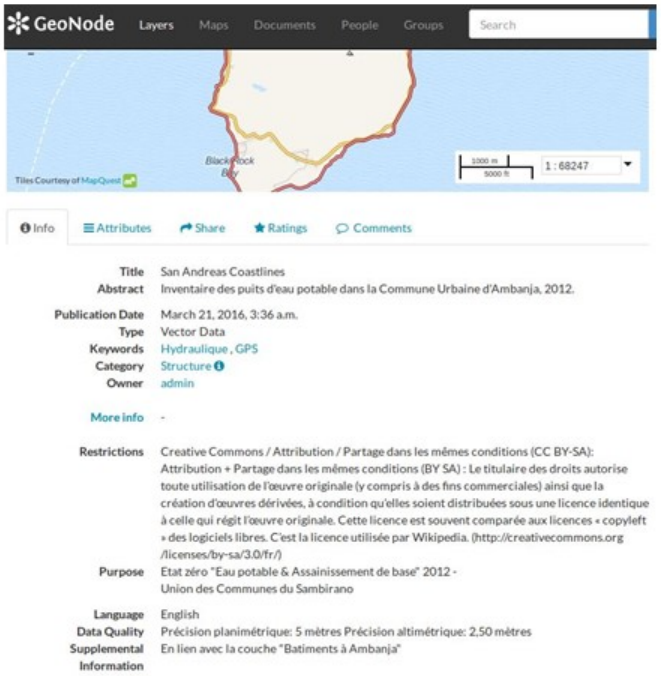
Best practices for metadata creation/workflow

1. Gather content for the metadata records
2. Use information that is already developed.
3. Choose a descriptive title for your data that incorporates who, what, where, when, and scale.
4. Choose keywords wisely.
5. Include as many details and be as complete as you can in the metadata record for future (and other) users of the data.



GLOSIS 2.0 - domain model and data exchange

- GLOSIS domain model created icw GSP P5
- Implementation of GLOSIS domain model available in OWL at https://owl.glosis.org/docs thanks to the SIEUSOIL (European Union project) icw GSP P5
- CodeLists (international) are being developed in cooperation with EJP SOIL
- Next steps:
  - Implement GLOSIS OWL implementation in existing v2.0 building blocks
  - Beta testing

Pillar 4 and 5 – future…

GSP is under a restructuring process, transforming the current Pillars into Outcome Areas for Soil Health. The role of Pillar 4 will be in the support to the producution of global maps of Soil Indicators (e.g. as GSOCmap, GSSmap, GSOCseq..)

Next programmed soil property maps (grids) - Coarse- (1 km) grids of soil properties: GSERmap (soil erosion), GBSmap (black soils), Soil Nutrient Mapping.

In the agenda for the next INSII meeting: INSII & GLOSOLAN towards a country-driven global soil spectral library and estimation services

Suggested by ESP pillar 4 & 5 to GSP: follow-up the mapping between INSPIRE soil-scheme and GloSIS2.0; follow-up the developing of GLOSIS international CodeLists, for which we suggest also the publishing through INSPIRE registry.

Some insights from the 1st EU INSII meeting – 4th February 2021

- 24 participants. Yusuf Yigini (GSP), Maria Fantappiè (ESP-Pillar4), Rainer Baritz (ESP-chair), Fenny van Egmond (ISRIC-SDF)
- INSII representative from: Slovenia, UK, Austria, France, Latvia, Greece, North Macedonia, Estonia, Netherlands, Germany, Israel, Spain, Estonia, Belgium, Latvia, Slovakia, Iceland.
- It was presented and discussed the concept note for the Pillar 4 Global Implementation Plan 2021-2030 (P4GIP), to reach agreement on the vision and approach for the next 10 years of the work of INSII, including goals, tasks, distribution of tasks, deliverables and timelines.
- Questions:

1. Which is the impact of **Pillar 4 products (e.g. GSOC, GSS, GSOCseq)** at national and sub-national level? How they **impact** with national and subnational accounting activities? How the national and subnational reporting on soil indicators interacts with **SoilSTAT** reporting?
2. Which are the **benefits** from international cooperation? **Standardization/harmonisation**; **methods tools, capacity building, GLOSIS infrastructure, support** in the developing of national soil information systems.
3. Which can be the principles at the base of a global soil data governance? FAIR & CARE principles, which are at the base of the **country-driven approach (data produced and owned at national level, but with common methods)**.

Some insights from the 1st EU INSII meeting – 4th February 2021

- Discussion, how could ESP-GSP contribute to EUSO?

1. Need for coordination of numerous ongoing initiatives in Europe.
2. Need to **define soil indicators relevant for Europe** (European Green Deal, Farm to Fork Strategy, the Soil Mission, Care for Soils Care for Life, CAP, and so on) and **align them with the international indicators** (GSP-SoilSTAT, SDGs, UNCCD, UNFCCC, and so on) so that the GSP thematic maps are EU-aligned. The resources are limited… save the efforts, do not duplicate the work.
3. **INSPIRE and GLOSIS** should be **harmonized** … save the efforts, do not duplicate the work.
4. European (national) soil data made available through **EUSO&INSPIRE**, should also be **findable in GLOSIS** … save the efforts, do not duplicate the work.
5. Need of support for the establishment of national soil information systems also for some countries in Europe.