



**Food and Agriculture  
Organization of the  
United Nations**



# **Report of the seventh workshop of the International Network of Soil Information Institutions (INSII)**

INSII-VII/21/Report

**REPORT OF THE SEVENTH WORKSHOP OF THE INTERNATIONAL  
NETWORK OF SOIL INFORMATION INSTITUTIONS (INSII)**

**Teleconference, 9–11 November 2021**

**FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS  
Rome, 2022**

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## List of acronyms

ACIAR	Australian Center for International Agricultural Research
BAU	Business as Usual
CSIRO	Commonwealth Scientific and Industrial Research Organization
EEA	European Environment Agency
ESIP	Earth Science Information Partners
EJP	European Joint Program
FAO	Food and Agriculture Organization of the United Nations
GBSmap	Global Black Soil Distribution Map
GLOSOLAN	Global Soil Laboratory Network
GLOSI	Global Soil Information System
GSEmap	Global Soil Erosion Map
GSOCmap	Global Soil Organic Carbon Map
GSP	Global Soil Partnership
GSSmap	Global Soil Salinity Map
GSOCseq	Global SOC Sequestration Potential Map
INSII	International Network of Soil Information Institutions
ISRIC	International Soil Reference and Information Centre
ITPS	Intergovernmental Technical Panel on Soils
IUSS	International Union of Soil Sciences
OGC	Open Geospatial Consortium
OEWG	Open-ended Working Group
P4	Pillar 4
P4IP	Pillar 4 Implementation Plan
P4WG	Pillar 4 Working Group
P5	Pillar 5
PA	Plenary Assembly
SDGs	Sustainable Development Goals
SDF	Soil Data Facility
SIS	Soil Information System
SISLAC	Latin America and the Caribbean's Soil Information System
SOC	Soil Organic Carbon
SOM	Soil Organic Matter
SSM	Sustainable Soil Management

## 1. Opening of the workshop

The seventh workshop of the International Network of Soil Information Institutions (INSII) took place from 9 to 11 November 2021. Due to the COVID-19 pandemic, it was held online to ensure the safety of all participants.

Mr Luca Montanarella (chair of INSII, European Commission (EC)) opened the workshop and welcomed all participants. He emphasized that it was a meeting of institutions and not individuals and encouraged all participants to interact during the meeting.

Mr Ronald Vargas (GSP Secretary) welcomed all participants and reiterated the need for cooperation with other technical networks. In light of the recent COP26 summit in Glasgow, he outlined the global relevance and need for more soil data in terms of quantity and quality, and that INSII would play a central role in this regard. He further informed the meeting about the decision for a call for an Open-ended Working Group (OEWG), agreed upon during the 9th Plenary Assembly (PA).

## 2. Adoption of agenda

Mr Luca Montanarella asked the participants if there were any objections regarding the proposed agenda. Mr Marc van Liedekerke (EC) asked to include a discussion point on the progress of the new Action Framework which included the revised Global Soil Information System (GloSIS) vision and governance. It was agreed to add this new agenda item after item II - Report of the 9th PA. The amended agenda (Annex I) was adopted unanimously.

## 3. Report of the 9th Plenary Assembly (PA)

Mr Luca Montanarella reported the decisions of the 9th PA that endorsed the work of the GSP in further developing tools for data-based and evidence-based decision making following a country-driven approach. Mr Montanarella underscored that the capacity-building program of the GSP was key to fostering future investments and the implementation of GloSIS. The Pillar 4 Implementation Plan (P4IP) expired in 2020 and was extended for an additional year.

Mr Montanarella explained that the PA agreed that soil threats and cross-cutting areas of work such as awareness raising and soil information and data were to be at the centre of the GSP's work, moving from a pillar-based system to a more action on-the-ground approach, which would be more attractive to donors and easier to implement.

The PA recommended that the new Action Framework should focus on establishing equitable and neutral systems that were inclusive of all countries as well as on providing capacity-building support to those that were being left behind. The new Action Framework, including GloSIS vision and governance would be submitted to the 10th GSP PA for endorsement. In the meantime, the PA agreed to continue with the preparation of the country-driven global

mapping products that were endorsed in this item, including the preparation of the global maps on soil erosion and soil nutrient budgets.

Several questions were raised regarding the expected timeframe and the selection process involved. Mr Ronald Vargas clarified that 27 representatives, evenly distributed according to the seven FAO regions would be nominated by FAO permanent representatives. Alongside the 27 national representatives, additional representatives from different interest groups would be part of the OEWG, such as from the civil society, private sector, academia, NGOs and relevant technical networks. In total, the OEWG would consist of 40 members. Mr Luca Montanarella, as chair of INSII, would be representing INSII in the OEWG.

It was agreed that an extraordinary INSII meeting prior to the first meeting of the OEWG would be organized to assure that the network's wishes and opinions were clearly represented during the drafting of the GSP action Framework. The date of this extraordinary meeting would be specified as soon as the OEWG was formed.

## 4. Progress report (2020-2021)

### *a. Global Soil Information System (GloSIS) Development*

Mr Yusuf Yigini (GSP Secretariat) reported the progress of GloSIS after a brief introduction of its rationale and main deliverables. He first presented a recently published key document (de Sousa *et al.*, 2021, *Conceptual design of Global Soil Information System Infrastructure*) that described the design of the datahub. Short-term (GloSIS 1.0) and long-term (GloSIS 2.0) objectives were pursued. GloSIS 1.0 tried to organize and help national entities to share existing data. In contrast, GloSIS 2.0 aimed at harmonized data storage that enabled data exchange using the “common language” of GloSIS.

Beta versions of GloSIS 1.0 were currently being tested in several countries, such as Bolivia and Senegal. Different national soil information systems were completed in the reporting period, for example, the Armenian Soil Information System. In addition, the completion of other countries' soil information systems were in progress, including Bangladesh, Mongolia and Nepal. The GloSIS Discovery Hub GeoNetwork was currently in the testing phase and supplied with data from completed national soil information systems (GloSIS 1.0).

### *b. GloSIS Data Products*

Three GloSIS global data products were already accessible online on GloSIS Global (Beta): the Global Soil Organic Carbon Sequestration map (GSOCseq) v1.0, the Global Soil Organic Carbon map (GSOCmap) v1.5 and the Global Map of Salt-Affected Soils (GSASmap) v1.0, which was recently launched. Mr Yigini proceeded by providing an update on the progress on the Global Black Soils Distribution map (GBSmap) as well as the Global Soil Erosion map (GSERmap). National experts involved with the launch of the GBSmap had entered the map

production phase although data scarcity remained a significant challenge. Efforts to kick-start the GSERmap would resume in the first quarter of 2022.

GloSIS-Global (Beta) was launched as a platform to provide all open-source libraries and data products under one name. The platform was soon to be moved under FAO domain. The capacity development was pivotal for the implementation of the country-driven approach and had continued online throughout the pandemic.

The INSII members were encouraged to go through a checklist part of the conceptual design of Global Soil Information System Infrastructure in order to assess organizational aspects regarding the establishment of a national soil information system (ANNEX IV).

## 5. Global Map of Salt-Affected Soils (GSASmap)

Mr Christian Thine (GSP Secretariat) presented the recently launched Global Map of Salt-Affected Soils (GSASmap). The GSASmap was created following a country-driven approach. The map represented spatial distribution of SAS information at two depth intervals: 0–30 cm and 30–100 cm including EC, ESP, pH, and classes of salt-affected soils.

The GSASmap was composed of layers showing the spatial distribution of SAS with  $EC_e > 2$  dS/m,  $ESP > 15\%$  and  $pH > 8.2$ , at two depth intervals (0–30 cm and 30–100 cm). The GSASmap is based on over 250 000 sampling locations from 118 countries. However, large data gaps remained, as some countries were still in the process of submitting the national GSASmap layers. In Europe, data gaps were filled using the LUCAS database. A meeting would be taking place to deal with the potential overestimation of salinity values observed by members from Italy (Maria Fantappiè) and Bangladesh (Jalal Shoaib).

## 6. Scotland's National Soils Archive (guest talk)

The first meeting day was concluded by a presentation given by Mr Allan Lilly from the James Hutton Institute on the establishment of Scotland's National Soils Archive. The archive keeps around 60 000 air-dried soil samples from 15 000 locations. The samples originated from two national sampling campaigns; a systematic soil survey (1934) and the National Soil Inventory of Scotland (NSIS)).

The soils archive provided insights on the effect of long-term storage on measurements as well as other benefits, for example, the comparison of forensic samples when locating crime scenes. Based on the insights given by Mr Lilly, the INSII members requested that the GSP secretariat facilitated the formation of an informal working group with the objective of promoting the exchange of experiences among INSII members that had established or were interested in establishing national soils archives.



## 7. GSOCseq v1.1

Ms Isabel Luotto (GSP Secretariat) presented the GSOCseq (Global Soil Organic Carbon Sequestration Potential Map) v1.1. The GSOCseq map followed the country-driven approach which was supported by an extensive capacity-development program. Ms Luotto presented the process behind the launch of the GSOCseq. She highlighted that special care and emphasis had been put into defining a methodology and technical specifications following a transparent and participatory approach.

The final GSOCseq was based on the RothC model which provided robust estimates of C turnover while requiring less data input. GSOCseq covered agricultural land uses of between 0–30 cm soil depth and presented projections of SOC stocks 20 years into the future. The projections were based on four scenarios; Business as Usual and three Sustainable Soil Management Scenarios that varied in the degree of carbon inputted into the soil. Sequestration potential was in line with previous estimates and ranged between 0.14 and 0.57 Pg yr<sup>-1</sup> of C sequestered by adopting SSM practices. All GSOCseq products were accompanied by respective uncertainty estimates.

Ms Luotto continued by presenting a potential way forward along with future updates for the GSOCseq. She underscored the fact that the GSOCseq was a living product that would be continuously updated and extended. To strengthen the exchange of knowledge and further refine a way forward for future versions of the GSOCseq, Ms Luotto invited interested INSII members and national experts on SOC modeling to potentially form a working group (see Annex IV).

## 8. GSOCseq in Action (2022)

Mr Guillermo Peralta (GSP Secretariat) presented two examples of how the GSOCseq was being used to scale up SSM in Costa Rica and Mexico. GSOCseq maps were used in the initial phase of the projects, to identify areas of low/high risk of SOC losses and low/high potential for SOC sequestration.

During the discussion, questions were raised regarding the potential of applying the methodology at a finer resolution as well as the potential of further increasing the computational speed of the modeling phase. It was specified that the proposed methodology could be applied at finer scales depending on the input data. Throughout the capacity development and map production phase, the scripts had been improved to increase the computation time of the modeling phase.

Mr Peralta acknowledged the important contribution of the Thünen-Institut in this regard. Questions were raised regarding whether the GSP Secretariat was currently coordinating efforts to have a scientific publication about the GSOCseq. Ms. Luotto confirmed that the GSP Secretariat was currently working on it and that all contributing countries would be listed as

main authors. Mr Montanarella welcomed this initiative and praised the Secretariat's efforts in working as inclusively and transparently as possible.

## 9. Creating Synergies: INSII & GLOSOLAN

### *a. Towards a country-driven global soil spectral library and estimation services*

Mr Raphael Viscarra Rossel (Curtin University, Australia) outlined the principles of soil spectroscopy and how it contributed to cost and time-efficient soil analysis as well as facilitating large-scale soil mapping. His work at the Commonwealth Scientific and Industrial Research Organisation (CSIRO) showed that the soil properties of different climates, ecosystems and environmental settings could be extracted from spectral information. Therefore, spectral libraries could be a useful tool in supporting digital soil mapping. Mr Viscarra Rossel presented globeSpeC, an online software platform that provided a free soil organic carbon estimation service.

Mr Yi Peng (GSP Secretariat) explained that the development of a central hub for spectral libraries would strengthen national initiatives to build up spectral laboratories and spectral libraries, as well as further developing capacities and ensuring knowledge transfer. This task had been taken up by the Global Soil Laboratory Network (GLOSOLAN). To date, the initiative had carried out six webinars, attended by almost 6000 participants from 142 countries.

As well as capacity-building at the national level, GLOSOLAN pursued further goals, such as standardizing methods on how spectra were measured and stored. It was planned to provide free estimation services supplied by soil spectra contributions from national libraries on a voluntary basis. The estimation service would follow the GSP guidelines regarding data and copyrights.

### *b. Converging Networks: GLOSOLAN & INSII*

Ms Lucrezia Caon (GSP Secretariat) highlighted the benefits arising from a cooperation between INSII and GLOSOLAN. The INSII network faced challenges regarding outdated soil data, data coverage and data harmonization. GLOSOLAN could provide harmonized, recently measured data with a large spatial coverage, including uncertainty measures. GLOSOLAN could advise INSII regarding technical specifications, or the preferential use of specific laboratory protocols. Conversely, INSII could inform GLOSOLAN about ideal data processing and storage procedures. Hence, cooperation between the networks created synergies.

## 10. Cloud-based geospatial analysis (guest talk)

Guest speaker Dr Serkan Girgin (University of Twente) talked about the opportunities that came along with the use of cloud-based computing services in his talk “Cloud-based geospatial analysis”. Thanks to the continuous growth of (geospatial) data, more traditional methods of data analysis, based on local workspaces, were increasingly presenting severe disadvantages. The performance and speed of data analysis were often compromised by too high computational requirements and/or by the need for sharing and downloading large amounts of data.

To avoid these limitations, a variety of cloud-based solutions were available, although posing different challenges to the user. Depending on which cloud-based solution was being used, different advantages and disadvantages had to be considered.

In summary, cloud-based solutions represented resilient and timely solutions that would minimize risks regarding hardware failure, while providing exceptional computational power to the user. Removing the necessity of acquiring and maintaining the hardware (off-site cloud solution) would make downloads to local workspaces redundant. However, cloud solutions required more informed users. Hence, improving and sharing know-how was a prerequisite for the use of such systems.

## 11. Soil Nutrient Mapping (Brainstorming & State of the Art)

Ms Carolina Olivera (GSP Secretariat) and Mr. Yuxin Tong (GSP Secretariat) provided some background information on a potential global map on soil fertility which was expected to be a potential outcome of the upcoming global symposium on Soil Fertility. INSII members were then invited to share any experiences and lessons learned: (i) from past national soil nutrient map exercises and (ii) from the methodologies adopted.

Mr Talal Darwish (National Council for Scientific Research, Lebanon) shared Lebanon’s experience with mapping relevant soil physical and biological soil properties and suggested that Lebanon could provide practical insights to the GSP.

Ms Nicole Wellbrock (Thünen-Institut, Germany) welcomed the idea of following a country-driven approach for the soil nutrient map. Ms Wellbrock underscored the need to not only focus on agricultural lands.

Ms Maria Fantappiè (CREA, Italy) stressed that a harmonized methodology was needed.

Mr Adolph Malatji (South Africa) suggested that micronutrient mapping of zinc, for example, could be relevant.

Ms Katrien Oorts (Department of Environment and Spatial Development/Flemish Planning Bureau for the Environment and Spatial Development, Belgium) and Ms Fenny van Egmond (ISRIC World Soil Information, the Netherlands) commented that a soil nutrient map could have large (political, societal) implications that should be considered. Ms Fenny van Egmond pointed to land grabbing and the identification of areas with excessive fertilizer use as controversial.

In addition, Mr Luca Montanarella reminded the participants that the uneven distribution of nutrient levels at the global scale, from both over and under-fertilization should be somehow reflected in the data product.

## 12. GSERmap, GBSmap

Mr Yusuf Yigini presented an update on two future global soil data products: the Global Soil Erosion map (GSERmap) and the Global Black Soil map (GBSmap).

Based on previous recommendations, a working group on soil erosion consisting of experts and multiple stakeholders would be created with the intention of starting from January 2022 onwards, facilitated by Mr Christian Omuto (GSP Secretariat). In addition, capacity development activities on the country-level had been organized. All INSII members were encouraged to join the working group. To this end, an email would be sent around. Some participants expressed their interest directly: Talal Darwish (Lebanon), Adolph Malatji (South Africa), Harsha Kadupitiya (National Resources Management Centre, Sri Lanka), Peter Kastelic (Agricultural Institute of Slovenia, Slovenia), Valerii Koliada (NSC ISSAR, Ukraine), Sibaway Mwangi (TARI, Tanzania), Desire Kabore (BUNASOLS, Burkina Faso), Sevinc Madenoglu (Ministry of Agriculture and Forestry, General Directorate of Agricultural Research and Policies, Turkey), and Antonio Bispo (INRAE, France). Additionally, Maria Fantappiè (CREA, Italy) and Romba Rasmané (BUNASOLS, Burkina Faso) expressed their interest in contributing to the development of the GBSmap.

## 13. GSOCmap 2.0

Ms Isabel Luotto presented a potential upcoming update of the GSOCmap to version 2.0. The GSOCmap was a key data product of the GSP. Since its launch, the GSOCmap had been updated several times through the inclusion of new and/or improved national maps. Several improvements had already been considered and these were presented by Ms Luotto. Conventional upscaling was to be replaced by digital soil mapping approaches. The submission of uncertainty layers should be made mandatory alongside the national SOC maps. Efforts to assure temporal harmonization of old legacy soil data and an extension of the mapped soil depth to at least one metre should be made. Ms Luotto invited the INSII members to provide feedback on these updates as well as to provide additional suggestions on what the update to version 2.0 should include.

In the following discussion, Mr Talal Darwish welcomed the update of the GSOCmap and added that mapping efforts regarding inorganic carbon content might also be important. A draft of the new version of the technical specifications and guidelines would be made available next year.

Following the discussion of this agenda item, Ms Nicole Wellbrock suggested that an overview be provided to all INSII members that summarized all tasks and respective deadlines on

deliverables in a comprehensive way. The GSP secretariat agreed to make such an overview available in the report (see Annex II).

## 14. Aging soil data (Guest talk)

Mr Marcos Angelini (Instituto Nacional de Tecnología Agropecuária (INTA), Argentina) presented two potential methods based on two case-studies from Argentina in order to address challenges linked with dated SOC data:

- (i) a temporal harmonization of SOC data considering land-use change, soil management practice and levels of carbon input following the IPCC model (2006). The main challenge of this approach was having access to spatial explicit data about land management, and land cover for the time period of analysis, and;
- (ii) a temporal harmonization of SOC data based on machine learning using Quantile Regression Forest. Here the challenge was to have a dense sampling dataset that covered space and time dimensions, so as to reduce the uncertainty in the resulting predictions. Mr Angelini explained that effective ways to deal with old SOC should be further explored. He suggested that the use of models such as the process-based RothC model following the temporal harmonization approach employed for the GSOCseq could represent a potential way forward.

## 15. Community Survey: INSII Profiles - survey on the importance of soil data

In an effort to increase the visibility of INSII and raise awareness over the importance of soil data, Ms Isabel Luotto encouraged INSII members to take part in a survey. The survey was aimed at sharing examples of projects linked to the use of soil data, ideally linked to the GSP activities, and that had had a positive impact at the field, sub-national and/or national level. A selection of these stories would be shared as communication material on the GSP website and social media. The INSII members welcomed the initiative.

## 16. Open discussion - Closing

Mr Luca Montanarella, invited the INSII members to present any issues that required further discussion.

Mr Arkadiy Levin (NCS ISSAR, Ukraine) asked why efforts to produce a Global Map of Soil Polygons based on the Soil and Terrain (SOTER) databases have not yet been kick-started. Mr Yusuf Yigini explained that a shift towards gridded soil maps was adopted due to a larger

interest within the soil science community for gridded products. The OEWG would decide on the potential future implementation of this global product.

Ms Katrien Oorts asked when the SoilSTAT Guidebook and Soil Indicator Factsheets, initially planned to be published in June 2021, would be finalized. Mr Yusuf Yigini replied that the publication of this document had been postponed due to time and resource limitations.

Mr Antonio Bispo highlighted the need to discuss the potential consequences of the institutionalization of the GSP within FAO for the INSII network. Mr Montanarella clarified that this issue would be discussed during the extraordinary INSII meeting before the first OEWG meeting and finally addressed by the OEWG.

Mr Mario Guevara (UNAM, Mexico) expressed his support and interest in the topics discussed within the INSII network and the GSP on behalf of the Latin American members. Mr Guevara requested more support in handling the increase in users of the Latin America and Caribbean Soil Information System (SISLAC) as well as in fixing data inconsistencies. He further underscored the need to increase the attendance and representation of LAC countries during the INSII meetings.

Mr Montanarella encouraged the chairs of the regional Pillar 4 Working groups to coordinate at the regional scale to address region specific issues and topics especially in preparation of the first meeting of the OEWG.

Finally, Mr Luca Montanarella, concluded the seventh INSII meeting by summarizing the main conclusions of the meeting. He highlighted that the actions of the GSP were largely determined by the future decisions of the OEWG. Therefore, all INSII members were encouraged to reflect on how INSII should position itself within the OEWG. This issue would be further discussed during an extraordinary meeting of INSII. He further encouraged all INSII members to get involved in the soil erosion working group. He pointed out the need for INSII to explore potential synergies with other networks such as GLOSOLAN. He highlighted the need to focus on the standardization efforts within pillar 5 despite the current lack of a pillar 5 chair. Finally, he welcomed the establishment of a working group on national soil archives.

Mr. Montanarella thanked all the participants for attending the meeting, and the GSP Secretariat for facilitating it.

## Annex I Meeting Agenda

7th INSII Meeting

Global Soil Partnership - International Network of Soil Information Institutions

9-10-11 November 2021 - Virtual ([10am-1pm UTC & GMT+0](#))

**Chairperson** Mr Luca Montanarella (European Commission - EU)

**Moderator** Mr Yusuf Yigini (GSP Secretariat)

**Rapporteur:** Ms Isabel Luotto (GSP Secretariat)

**Minutes:** Mr Moritz Mainka (GSP Secretariat)

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Registration

Registration is **required**. After registering, you will receive a confirmation email containing information about joining the meeting.

### Local Times

[10am UTC to Local Time](#)

### Meeting Platform

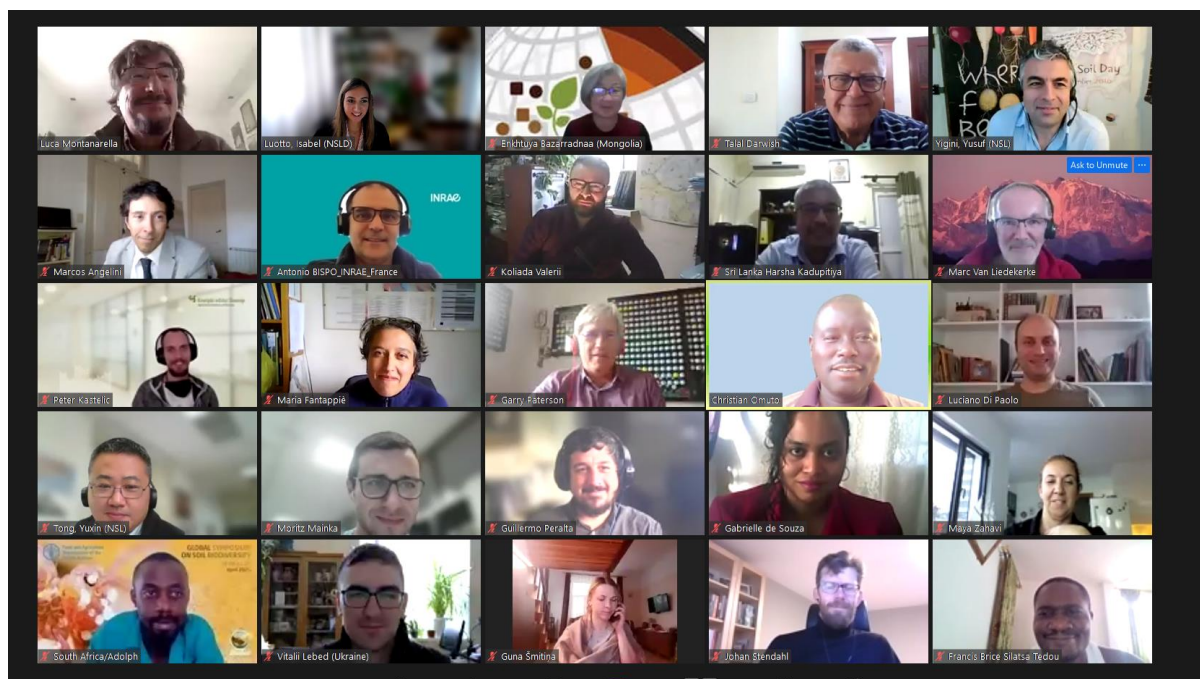
ZOOM - [Download/update Zoom](#)

### Meeting Recordings/Chat

**DAY I** ([Video](#) | [Chat](#)) **DAY II** ([Video](#) | [Chat](#)) **DAY III** ([Video](#) | [Chat](#))

### Photos

[LINK](#)



## Agenda

# DAY 1 - 9 November 2021 | 10am-1pm GMT+0

- 10:00 - 10:15** Opening and Adoption of the Agenda' - **Mr Luca Montanarella**
- I. **10:15 - 10:30** Introduction - **Mr Luca Montanarella** (Chairperson) - **Mr Ronald Vargas** (Secretary of the GSP )
- II. **10:30 - 10:45** Report of the 9th PA (Decisions)  
[Agenda Paper 2021/II](#) | [Presentation](#)
- III. **10:45 - 11:15** Progress report (2020-2021) - **Mr Yusuf Yigini**  
[Presentation](#) (ITEM IIIa &IIIb)  
 (a) GloSIS Development | Agenda Paper 2021/III-a  
[Agenda Paper 2021/III-a](#)  
 (b) GloSIS Data Products  
[Agenda Paper 2021/III-b](#)
- 11:15 - 11:30** Break
- IV. **11:30 - 12:30** GSASmap (Presentation, Discussion) - **Mr Christian Thine**



[Agenda Paper 2021/IV](#) | [Presentation](#)

**12:30 - 12:50** Scotland's National Soils Archive (Guest Talk)

[Presentation](#)



**12:30 - 12:50 - Scotland's  
National Soils Archive (*Guest Talk*)**

**Dr Allan Lilly** - Principal Soil Scientist / The  
James Hutton Institute Scotland, UK

Presentation

**12:50 - 13:00** Closing

## DAY 2 - 10 November 2021 | 10am-1pm GMT+0

V. **10:00 - 10.45** GSOCseq v1.1 (Presentation, Discussion, Way forward) - **Ms Isabel Luotto, Mr Guillermo Peralta**

VI. **10:45 - 11.15** GSOCseq in Action (2022) - **Mr Guillermo Peralta, Mr Luciano Di Paolo**

[Agenda Paper 2021/V-VI](#) | [Presentation](#)

**11:15 - 11.30** *Break*

VII. **11:30 - 12:30** Creating Synergies: INSII & GLOSOLAN

a) Towards a country-driven global soil spectral library and estimation services - **Mr Yi Peng & Raphael VISCARRA ROSSEL**

[Presentation I](#) (Mr Raphael Viscarra Rossel) | [Presentation II](#) (Mr Yi peng)

b) Converging Networks: GLOSOLAN & INSII

[Agenda Paper 2021/VII](#) | [Presentation](#)

**12:30 - 12:55** Cloud Based Geospatial Analysis (Guest talk)

[Presentation](#)



### **12:30 - 12:55 Cloud-based Geospatial Analysis (Guest talk)**

**Dr Serkan Girgin** - Center Of Expertise In Big Geodata Science (CRIB), University of Twente, The Netherlands

**12:55 - 13:00** Closing - Mr Luca Montanarella

## DAY 3 - 11 November 2021 | 10am-1pm GMT+0

- VIII. **10:00 - 10.45** Soil Nutrient Mapping (Brainstorming & State of the Art) - **Ms Carolina Olivera, Mr Yuxin Tong**

[Agenda Paper 2021/VIII](#) | [Presentation](#)

- IX. **10:45 - 10.55** GSERmap, GBSmap - **Mr Yusuf Yigini**

[Agenda Paper 2021/IX](#) | [Presentation](#)

- X. **10:55 - 11:25** GSOCmap 2.0 - **Ms Isabel Luotto**

[Agenda Paper 2021/X](#) | [Presentation](#)

**11:25 - 11:40** *Break 15'*

**11:40 - 12: 00** Aging Soil Data (Guest talk)

[Presentation](#)



### **11:40 - 12:00 Aging Soil Data (Guest talk)**

**Dr Marcos Angelini** - Instituto Nacional de Tecnología Agropecuaria (INTA), Argentina

**12:00 - 12:10** Community Survey: INSII Profiles - survey on the importance of soil data - **Ms Isabel Luotto**

[Presentation](#)

**12:10 - 12:30** Closing

## Annex II List of attendance

<b>First name</b>	<b>Last name</b>	<b>Institute</b>	<b>Country</b>
Anna Maria	Agustsdottir	Soil Conservation Service of Iceland	Iceland
Abdelmagid Ali	Elmobarak	Land and Water Resource Centre (LWRC) - Agricultural Research Corporation (ARC)	Sudan
Abdou Rahman	Jobe	Soil and Water Management Services Unit, Ministry of Agriculture	Gambia
Ajith	Hettiarachchi	Natural Resource Management Centre (NRMC)	Sri Lanka
Alexander	Owusu Ansah	Council for Scientific and Industrial Research (CSIR) - Soil Research Institute (SIR)	Ghana
Alla	Achasova	National Scientific Center (NSC) "Institute for Soil Science and Agrochemistry Research Named After O.N. Sokolovsky" (ISSAR)	Ukraine
Allan	Lilly	James Hutton Institute	United Kingdom
Amin	Ismayilov	Institute of Soil Science and Agrochemistry of Azerbaijan National Academy of Sciences	Azerbaijan
Andrew	Flores	Bureau of Soils and Water Management	Philippines
Anna	Gorbacheva	Lomonosov moscow state university	Russia
Anneliza	Collett	Dep. of Agriculture, Land Reform, and Rural Development (DALRRD)	South Africa
Antonio	Bispo	French National Research Institute for Agriculture, Food and Environment (INRAE)	France
Arifunnahar	Akhi	Soil Resource Development Institute	Bangladesh
Arijit	Barman	Central Soil Salinity Research Institute (ICAR)	India

Arkadiy	Levin	National Scientific Center (NSC) "Institute for Soil Science and Agrochemistry Research Named After O.N. Sokolovsky" (ISSAR)	Ukraine
Arnulfo	Encina Rojas	Universidad Nacional de Asunción	Paraguay
Aung Kyaw	Thu	Department of Agricultural Research	Myanmar
Azamat	Yershbul	Institute of Soil Science - Al-Farabi Kazakh National University	Kazakhstan
Bayan	Athamneh	Environment Agency Abu Dhabi	UAE
Margareth	Simões	Empresa Brasileira de Pesquisa Agropecuária (EMBRAPA)	Brasil
Georges Kogge	Kome	University of Dschang	Cameroun
Carolina	Cardoso Lisboa	Food and Agriculture Organization - Global Soil Partnership	Germany
Carolina	Olivera	Food and Agriculture Organization - Global Soil Partnership	Italy
Caroline	Keay	Cranfield University	United Kingdom
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Yusuke	Takata	National Agriculture and Food Research Organization (NARO)	Japan
Ovezdurdy	Jumadurdyev	UNDP Turkmenistan	Turkmenistan

### Annex III Global Maps - Timeline

Product	Activity/Milestone	Deadline
GSOCseq v1.x	V1.2, v1.3	December 2022
GSOCmap 2.0	Updated Guidelines and Cookbook	June 2022
GSASmap v1.x	v1.x	December2022
GSNmaps (Global Soil Nutrient Maps)	v1.0	TBD
GSEmap (Global Soil Erosion Map)	v1.0	TBD

## Annex IV Action Items and Links

Action Item	Attachments	Deadline
<p><b>Working Group: National Soils Archive</b> An informal working group with the objective of promoting the exchange of experiences and relevant knowledge among INSII members that established or are interested in establishing national soil archives.</p>	<p><b>Form:</b> <a href="https://forms.gle/fD5Pb6DiLyWj51iy7">https://forms.gle/fD5Pb6DiLyWj51iy7</a></p>	NA
<p><b>Working Group: GSOCseq</b> A working group with the objective of defining and discussing a way forward for the new versions of the GSOCseq. Members of the working group should provide comments of the GSOCseq Way Forward concept note by 15/02/2022 directly on the online document.</p>	<p><b>Form:</b> <a href="https://forms.gle/F5f7NGsqqv94K7VE9">https://forms.gle/F5f7NGsqqv94K7VE9</a></p> <p><b>GSOCseq Way Forward Concept note:</b> <a href="#">Concept Note_GSOCseq_Wayforward.docx</a></p>	15/02/2022
<p><b>Working Group: GSERmap</b> The working group will support the delineation of relevant documents (concept note, technical specifications, and country guidelines) of the GSERmap. The activities related to the GSERmap will be kick-started in January 2022.</p>	<p><b>Form:</b> <a href="https://forms.gle/eXdAtxQGL1bWaNhXA">https://forms.gle/eXdAtxQGL1bWaNhXA</a></p>	31/12/2021
<p><b>Survey: INSII profiles</b> The survey is aimed at sharing examples of projects of the INSII institutions in which the use of soil data and information has brought about a positive impact at the national, sub-national and/or field scale (ideally but not exclusively examples related to the GSP)</p>	<p><b>Survey:</b> <a href="https://forms.gle/DBwacTwfZs2C9tQ5A">https://forms.gle/DBwacTwfZs2C9tQ5A</a></p>	NA
<p><b>Checklist: GloSIS 1.0 Template Node Instructions Guide</b> Countries interested in establishing/harmonizing a national Soil Information System are encouraged to go through a preparatory checklist part of the attached document.</p>	<p><b>Document:</b><a href="https://docs.google.com/document/d/1xRVDYDIBIDqgXlD5oovlca8b9AIEHtBleJjZm2XUs8w/edit">https://docs.google.com/document/d/1xRVDYDIBIDqgXlD5oovlca8b9AIEHtBleJjZm2XUs8w/edit</a></p>	NA

