GLOSOLAN activities in 2023 and future challenges

Ms. Miriam Ostinelli, GLOSOLAN Chair

7th Meeting of the Global Soil Laboratory Network (GLOSOLAN)
Soil laboratories: where soil samples become data

7th Meeting of the Global Soil Laboratory Network (GLOSOLAN) | 21-23 November 2023
GLOSOLAN: bringing soil laboratories to the forefront worldwide since 2017

Currently grouping together around 1,000 soil testing institutions from around 160 countries

7th Meeting of the Global Soil Laboratory Network (GLOSOLAN) | 21-23 November 2023
We operate at all levels...

GLOBAL

REGIONAL

NATIONAL

7th Meeting of the Global Soil Laboratory Network
Collaborative and participative approach...

... where the most advanced laboratories help those who need to improve
Status of GLOSOLAN

Currently **997** registered soil laboratories from 160 countries

(→ around **3 000** lab heads and technicians involved)
Harmonization of Standard Operating Procedures (SOPs)

Globally harmonized protocols, with a bottom-up, collaborative and inclusive approach.
- Include step-by-step instructions, sections on health and safety, quality assurance and control (QA/QC),
- Contribute to the replicability of an analysis and to the quality and reliability of the data,
- Available online, for free and in several languages.

New SOPs published in the last months:
- Soil respiration rate
- Soil moisture by gravimetric method
- Cation exchange capacity and exchangeable bases
- Available micronutrients by DTPA extraction method
- Quasi total elements in soil by acid digestion including heavy metals
- Bulk density

Under publication:
- Boron by hot water extraction

Under final review:
- Particulate organic carbon by physical fractionation
- Microbial biomass
- Microbial enzyme activities

Experts from the other GSP Technical Networks supported the harmonization and review of the SOPs from joint working groups.
Capacity building

- In-person training sessions
  - Djibouti, December 2022
  - Uzbekistan, May 2023
  - Dakar, October 2023

- Many activities ongoing at regional and national scales
Capacity building

- 4 new webinars implemented in 2023, over 1 000 participants
- New webinar calendar for 2024
- Video training
- Review of FAO Bulletin 74
- Guidelines on reagents disposal

Several topics covered:
- SOPs implementation
- Quality control and good practices
- Health and safety
- Equipment
- Soil spectroscopy

- Webinar on cleaning and washing soil laboratory glassware and equipment (in Spanish), August 2023
In-person training on *raising confidence in quality measurements from soil laboratories in Sub-Saharan Africa*

Over 80 soil laboratory technicians from 40 Sub-Saharan countries gathered together in Dakar (Senegal) on 23-27 October 2023
Ongoing and future inter-laboratory proficiency tests (PTs)

- Launch of 3 regional PTs in 2023:
  - Eurasia (led by RUSOLAN, thanks to the support of PhosAgro) – Main topic: CARBON
  - Asia (led by the BSWM - Philippines): C, pH, N, P, K, particle size distribution
  - Africa+NENA (thanks to the support of BGS and IRD)

- Launch of several national PTs

- Launch of a global GLOSOLAN PT in 2024 (expectations: around 300 labs participating)

Exchange of soil samples for scientific purposes remains a major issue in many countries

- High-performing laboratories have a key role to play in helping and training less successful laboratories on a regular basis
- GLOSOLAN will continue building the capacity of countries to organize PTs and will facilitate the organization of regional/global PTs

7th Meeting of the Global Soil Laboratory Network (GLOSOLAN) | 21-23 November 2023
GLOSOLAN initiative on soil spectroscopy (GLOSOLAN-Spec)

- Primer for soil spectroscopy: to introduce theory and concepts of soil spectroscopy at the beginner level (available in different languages)

- Training in soil spectral modelling in R (six sessions)

- Webinars with spotlight on state-of-art, research and discussion

- Launch of the International Capacity Development Group on Soil Spectroscopy (SoilSpecNet)

7th Meeting of the Global Soil Laboratory Network (GLOSOLAN) | 21-23 November 2023
Joint work with other GSP Tech. Networks

- Review GLOSOLAN SOPs (biological parameters, salt-affected soils related parameters, heavy metals and pollutants)
- Develop technical documents (e.g., guidelines on reagents disposal)
- Organize together workshop and webinars
- Experts from GLOSOLAN to help other GSP Technical Networks to develop SOPs (e.g. INSOP, INSOILFER) and organize workshop together
Participation to international conferences

17th International Symposium on Soil and Plant Analysis (ISSPA) Concepción, Chile – March 2023

• One keynote presentation on GLOSOLAN activities and mission

• Four presentations during the technical sessions on:
  • GLOSOLAN SOPs: a trigger to face emerging challenges on sustainable soil management worldwide
  • Soil laboratories: key players in the development and use of soil quality and health indicators
  • GLOSOLAN PTs: how reliable are soil laboratory measurements worldwide?
  • The contribution of soil laboratories to the sustainable management of fragile and degraded soils
Involvement in other GSP initiatives and programs

• RECSOIL (e.g., lab training in Togo)

• SOILCARE project

• SoilFER project
External collaborations

• FAO Regional Office for Asia and the Pacific: **Asian knowledge hub** - Webinar on soil labs and soil testing kits (7-8 November 2023)

• **ISO**: first discussion on potential cooperation held in October 2023

• GLOSOLAN invited to join the International Governance Committee (**IGC**) for the International Symposium on Soil and Plant Analysis (**ISSPA**)

• Publication on **scientific journals** (PT outcomes, transfer functions, etc.)

---

7th Meeting of the **Global Soil Laboratory Network** (GLOSOLAN) | 21-23 November 2023
What’s next?

• Review and translate GLOSOLAN SOPs and other documents
• More in-person workshops
• Regional and global PTs
• Procurement of laboratory equipment
• Development of scientific literature and reports
• Strengthening the activities of GLOSOLAN-Spec
• FAO global symposium on soil data quality – 2024
• World Soil Day 2024 theme: soil measurement
Thanks to the kind support of

7th Meeting of the **Global Soil Laboratory Network** (GLOSO LAN) | 21-23 November 2023