



Food and Agriculture  
Organization of the  
United Nations

# 5<sup>th</sup> Meeting of the **European and Eurasian Soil Laboratory Network** (EUROSOLAN)

18-19 October 2023

# Examples from the National Reference Laboratories (RUSOLAN)

*Elena Shamrikova*

*Ecoanalytical Laboratory,*

*Institute of Biology of Komi SC RAS,*

*Russian Federation*

[shamrikovaelena@yandex.ru](mailto:shamrikovaelena@yandex.ru)



**EUROSOLAN**  
EUROPEAN AND EURASIAN SOIL LABORATORY NETWORK





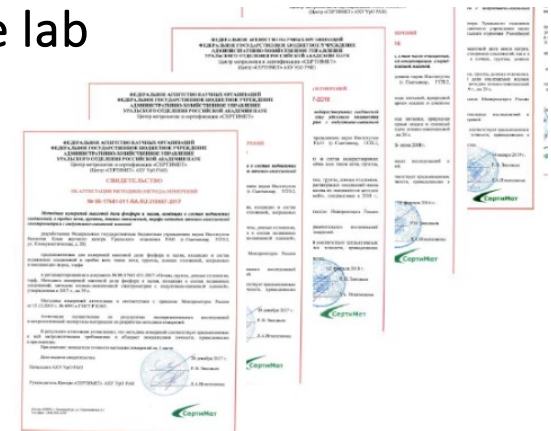
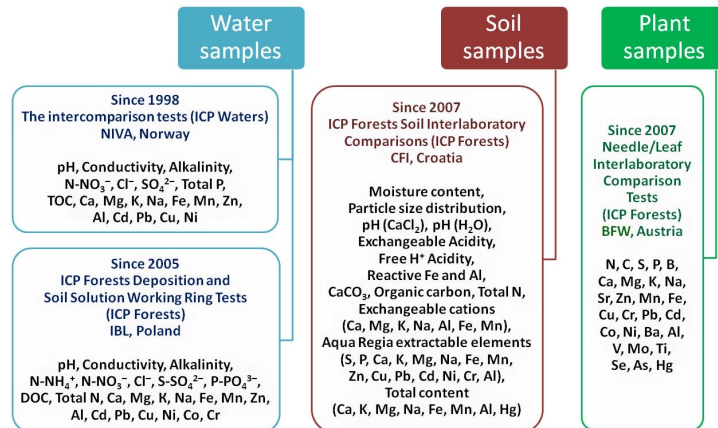
# NATIONAL REFERENCE LABORATORY

Institute of Biology Komi Scientific Center Ural Branch Russian Academy of Sciences (<https://ib.komisc.ru>)

- Ecoanalytical Laboratory - accredited to the ISO/IEC 17025
- Department of Soil Science

## Proficiency testing (PT)

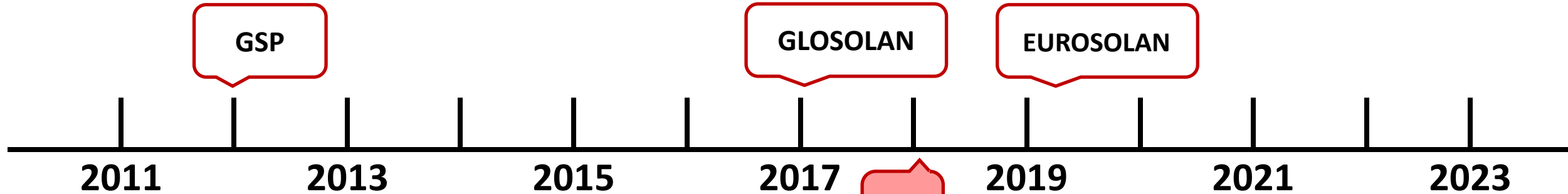
30 SOPs were developed and/or metrologically certified in the lab



Staff	
Number of laboratory staff	54
Qualification of laboratory staff (e.g. university degree)	7 - Dr of Sciences, 15 - PhD, 20 - Engineers-chemists of higher qualification



# HISTORY REFERENCE




## GLOSOLAN Global Soil Laboratory Network

### CERTIFICATE OF REGISTRATION

This certificate is awarded to Ecoanalytical laboratory of the Institute of Biology of Komi Scientific Center of the Ural Branch of the Russian Academy of Sciences (Ecoanalytical laboratory, IB Komi SC UB RAS) - Russian Federation to acknowledge their official registration in the Global Soil Laboratory Network

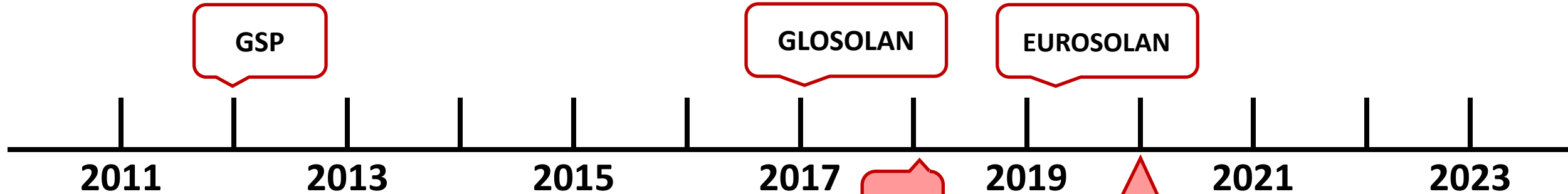
October 2019  
Food and Agriculture Organization  
Rome, Italy

  
Mr. Eduardo Mansur  
Director of the Land and Water Division,  
Food and Agriculture Organization

5<sup>th</sup> Meeting of the **European and Eurasian Soil Laboratory Network (EUROSOLAN)** | 18-19 October 2023



# HISTORY REFERENCE




## GLOSOLAN Global Soil Laboratory Network

### CERTIFICATE OF REGISTRATION

This certificate is awarded to Ecoanalytical laboratory of the Institute of Biology of Komi Scientific Center of the Ural Branch of the Russian Academy of Sciences (Ecoanalytical laboratory, IB Komi SC UB RAS) - Russian Federation to acknowledge their official registration in the Global Soil Laboratory Network

October 2019  
Food and Agriculture Organization  
Rome, Italy

  
Mr. Eduardo Mansur  
Director of the Land and Water Division,  
Food and Agriculture Organization

5<sup>th</sup> Meeting of the **European and Eurasian Soil Laboratory Network (EUROSOLAN)** | 18-19 October 2023





# HISTORY REFERENCE

GSP

GLOSOLAN

EUROSOLAN



2011

2013

2015

2017

IB

2019

IB - NatRefLab

2021

2023



Global Soil

CERTIFICATE

This certificate is awarded to Ecoanlytical laboratory, to acknowledge Global

October 2019  
Food and Agriculture Organization  
Rome, Italy



## 15 laboratories:

Barnaul, Bryansk, Moscow, Novosibirsk, Perm, Petozavodsk, Pushino, Rostov-on-Don, St. Petersburg, Syktyvkar, Voronezh, Volgograd region

5<sup>th</sup> Meeting of the European and Eurasian Soil Laboratory Network (EUROSOLAN) | 18-19 October 2023



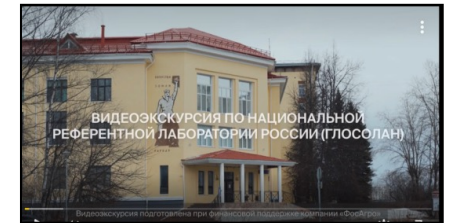


Российская Национальная сеть почвенных лабораторий

ГЛАВНАЯ ИСТОРИЯ НОВОСТИ УЧАСТНИКИ ДОСТИЖЕНИЯ КОНТАКТЫ Q



<https://ib.komisc.ru/rusolan/>



Today the National Network is actively functioning

5<sup>th</sup> Meeting of the **European and Eurasian Soil Laboratory Network (EUROSOLAN)** | 18-19 October 2023







# Российская Национальная сеть почвенных лабораторий

ГЛАВНАЯ ИСТОРИЯ НОВОСТИ УЧАСТНИКИ ДОСТИЖЕНИЯ КОНТАКТЫ



<https://ib.komisc.ru/rusolan/>

Food and Agriculture Organization of the United Nations

Global Soil Partnership

Overview Partners Regional partnerships ITPS Technical networks Areas of work Resources

GLOSOLAN homepage

Soil Analysis

Capacity development

Equipment

Regional Soil Laboratory Networks

National Soil Laboratory Networks

SIMPLE - Soil Import Legislation

**Russian Federation**

Soil laboratories from the country are highly welcome to join the Global Soil Laboratory Network (GLOSOLAN) by filling the **REGISTRATION FORM** and send it to [Lucrezia.Caon@fao.org](mailto:Lucrezia.Caon@fao.org) and to [GSP-Secretariat@fao.org](mailto:GSP-Secretariat@fao.org).

**STATUS OF THE NASOLAN OF THE RUSSIAN FEDERATION**

**NAME OF THE NATIONAL NETWORK: RUSSIAN SOIL LABORATORY NETWORK (RUSOLAN)**

- STATUS: Established
- DATE OF ESTABLISHMENT: 29 April 2022
- NUMBER OF MEMBERS: 13

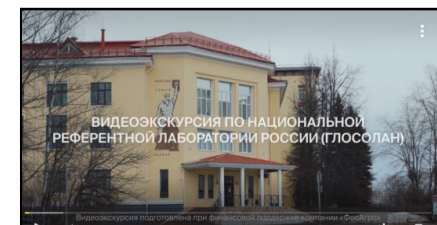
**REFERENCE LABORATORY**

**NAME:** Ecoanalytical laboratory of the Institute of Biology of Komi Scientific Center of the Ural Branch of the Russian Academy of Sciences

- ADDRESS: Syktyvkar, Russia, 167982
- GLOSOLAN MEMBER SINCE: 16 April 2018
- TYPE OF LABORATORY: Research center
- TYPE OF ANALYSIS PERFORMED: Chemical, physical, biological, fertilizers, plants, water, pollutants, tissues.
- HEAD OF THE LABORATORY: Ms Elena V. Shamrikova

**RUSSIAN SOIL LABORATORY NETWORK (RUSOLAN) MAP**

**BRIEF HISTORY OF THE NETWORK**



## Today the National Network is actively functioning

<https://www.fao.org/global-soil-partnership/glosolan>

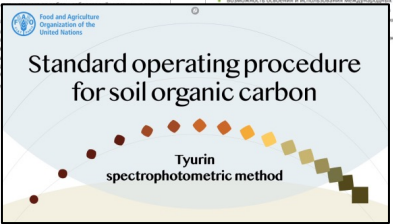
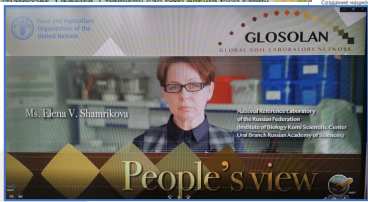
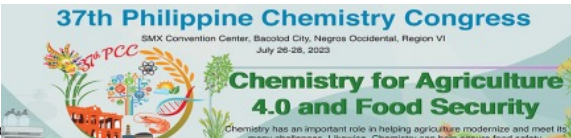
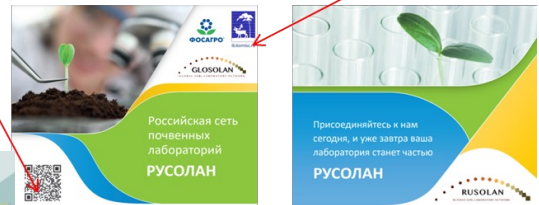
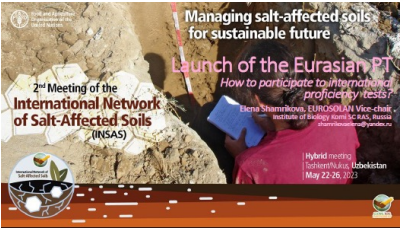
### 5<sup>th</sup> Meeting of the European and Eurasian Soil Laboratory Network (EUROSOLAN) | 18-19 October 2023





# WHAT DID GLOSOLAN GIVE US?

- Many platforms for interaction with colleagues from different regions of the planet



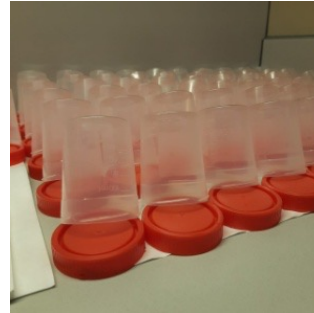
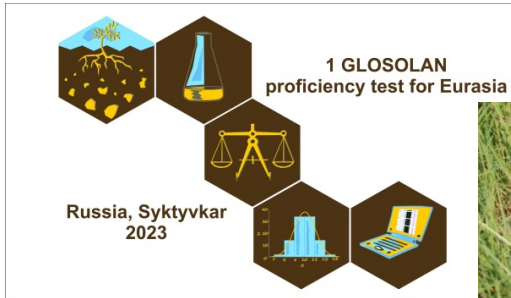
5th Meeting of the European and Eurasian Soil Laboratory Network (EUROSOLOAN) | 18-19 October 2023





# WHAT DID GLOSOLAN GIVE US?

- Event coordination. Meetings, Webinars, PT



**PROGRAM**  
Webinar dedicated to holding  
GLOSOLAN Proficiency Test for Eurasia 2023

**ORGANIZERS**  
Institute of Biology, Komi Science Center, Ural Branch of the Russian Academy of Sciences

**FINANCIAL SUPPORT**  
PhosAgro

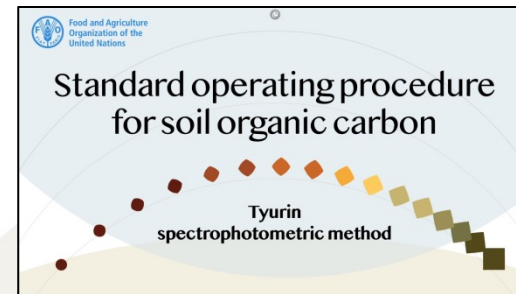
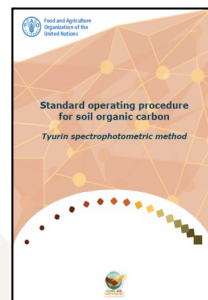
**26 September 2023**  
10.30 – 12.00 (Moscow time)

**Link to the event:**  
<https://trueconf.ru/c/34d62ba65a7bfc68ceda05d2beacae2/>

**Moderator: Elena Shamrikova**

**10.30 – 10.35** Greeting: Institute of Biology, Komi Scientific Center, Ural Branch of the RAS | **Ph.D. Ivan Chadin, Director**

- Capacity building. Access to harmonized SOP, mastering and development of new methods



## Organic carbon

Carbon, as soil organic matter, alters the physical (e.g. structure), chemical (e.g. cation exchange capacity), and biological (e.g. microbial activity) properties of soils with impacts on plant growth and yield, biodiversity and the soil water retention capacity. The content of organic carbon of mineral horizons can be used also in soil classification, taking the textural class into account. However, the inferred organic carbon status of a soil should always be locally checked as it is only a rough estimate.

The methods to measure organic carbon are rather easy to run but a special effort should be made by soil analysis laboratories to provide the best possible quality data. This will allow monitoring of changes in SOC at both local and regional scales and also give a better idea of the future scenarios, not only for SOC content but also for atmospheric CO<sub>2</sub> evolution. Did you know that the Global Soil Partnership launched a series of activities on soil organic carbon? For more information click [here](#).

The methods to quantify SOC already harmonized by GLOSOLAN are the following:

- SOP Walkley-Black method – titration and colorimetric method (EN | ES | RU)
- Soil organic carbon – Tyurin spectrophotometric method (EN | RU)
- Training video: Walkley and Black - **titration** and **colorimetric** method
- Training video: **Tyurin method**

Soil Organic Carbon methods : Sustainability of methods					
Method	Risk for human health related to the use of chemicals and the overall implementation of procedure by staff	Environmental risk (waste disposal)	Level of technology required	Average duration of the analysis	Global median price of the analysis (for the customers)
Walkley & Black	High	High	Low	Up to one working day	6 USD
Tyurin	High	High	Low	Up to one working day	7.6 USD

5<sup>th</sup> Meeting of the European and Eurasian Soil Laboratory Network (EUROSOLAN) | 18-19 October 2023



# WHAT DID GLOSOLAN GIVE US?

Capacity building. Development of a new promising research niche – harmonization of soil research methods used in different regions

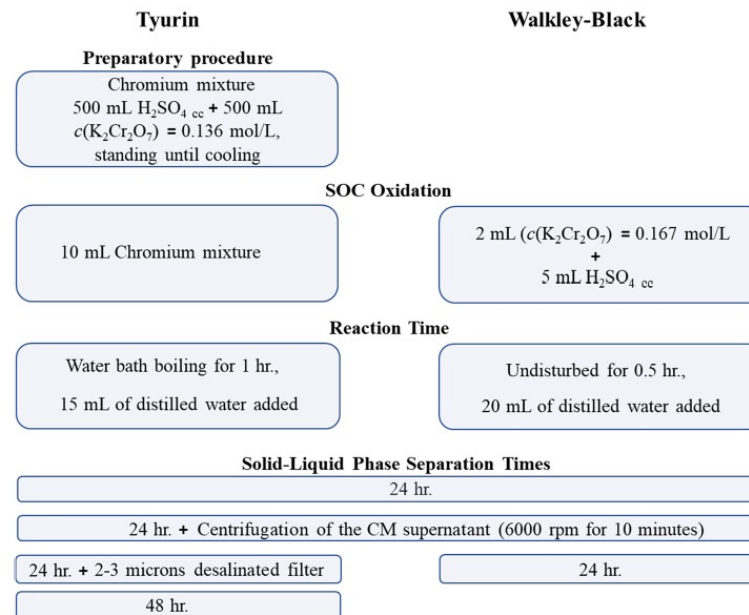


Fig. 1. Measuring steps according to Tyurin and Walkley-Black methods ("cc - concentrated acid; c - molar concentration of the solution (mol/L)").



# WHAT HELPED?

- Experience and stability of the team,
- Motivation to expand competencies,
- Enthusiasm

- Administration of the Institute of Biology,
- PhosAgro Company,
- Dokuchaev Soil Science Society,
- Lucrezia Caon, Nopmanee Suvannang, Filippo Benedetti, Maria Konyushkova, Pavel Krasilnikov



Institute of Biology  
Komi Science Center  
Ural branch  
Russian Academy of Sciences



Dokuchaev  
Soil Science Society



5<sup>th</sup> Meeting of the **European and Eurasian Soil Laboratory Network (EUROSOLAN)** | 18-19 October 2023



# JOIN GLOSOLAN?

- Exchange of experience,
- Professional development,
- PT (global, regional, national),
- Using best practices in soil spectroscopy...



5<sup>th</sup> Meeting of the **European and Eurasian Soil Laboratory Network (EUROSOLAN)** | 18-19 October 2023







Food and Agriculture  
Organization of the  
United Nations

A decorative graphic consisting of a series of squares and dots in shades of brown, orange, and grey, arranged in a curved path that points towards the text.

**EUROSOLAN**  
EUROPEAN AND EURASIAN SOIL LABORATORY NETWORK

Thanks for your attention!

