



Food and Agriculture
Organization of the
United Nations

GLOSOLAN-Spec work report in 2021-2022

Dr. Eyal Ben Dor, Steering Committee Chair



Soil spectroscopy webinars

- Five online webinars
- A total of 2791 registrations from 124 countries
- A total of 1434 participants joined live session
- Video recordings
- Questions and discussions



Towards operational large-scale soil spectral libraries

11 October 2022 | 14:30 CEST

SPEAKER: **Leonardo Ramirez-Lopez**
LANGUAGE: **English**

[Details of the event](#) | [Presentation \(available soon\)](#) | [Video recordings](#)

☐ **Soil sample preparation for MIR measurement. Is fine grinding necessary for accurate MIR predictions?**



07 September 2022 | 16:00 CEST

SPEAKER: **Dr Nuwan Wijewardane**
LANGUAGE: **English**

[Details of the event](#) | [Presentation](#) | [Video recordings](#)

☐ **The role of spectroscopy in promoting precision agriculture solutions**



24 March 2022 | 14:00-16:00 CET

SPEAKER: **Prof Abdul M. Mouazen**
LANGUAGE: **English**

[Details of the event](#) | [Presentation](#) | [Recordings](#)

☐ **Interpretation of mid infrared spectra of soil - Direct use of spectra to provide new insights**



16 June 2022 | 15:00-17:00 CEST

SPEAKER: **Dr Jean Robertson**
LANGUAGE: **English**

[Details of the event](#) | [Presentation](#) | [Video recordings](#)

☐ **Soil spectroscopy from the Danish perspective**



27 April 2022 | 14:00-16:00 CET

SPEAKERS: **Dr Maria Knadel, Dr Nicolai Bork**
Language: **English**

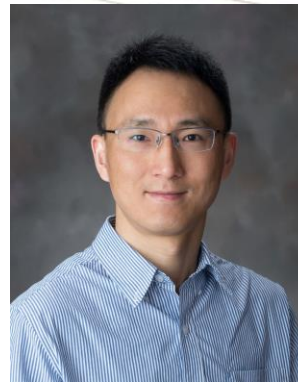
[Details of the event](#) | [Presentation Dr Knadel](#) | [Dr Bork](#) | [Recordings](#)

Soil spectroscopy training material

Project: Innovative Digital Tools for Soil Fertility Management in Uzbekistan

More than 650 downloads

Funding: World Bank in cooperation with the Korean Trust Fund for Green Growth (KGGTF)



Yufeng Ge

University of Nebraska



Yi Peng

FAO/GSP



Alexandre Wadoux

University of Sydney

Reviewers: Prof. Budiman Minasny (University of Sydney)

Prof. José Alexandre M. Demattê (University of São Paulo)

Preface writing: Prof. Alex McBratney (University of Sydney)

Soil spectroscopy training material



Zhou Shi
Zhejiang University



Songchao Chen
Zhejiang University



Maria Konyushkova
FAO/GSP



Available in Chinese, thanks to the work of Zhejiang University, and Russian, thanks to the work of Maria Konyushkova.

French translation, thanks to the work of Sougueh Cheik, Elh M. Moustapha Abdourahaman, Clémence Mariage, Alexandre Wadoux and Isabelle Verbeke, available soon.

Soil spectral modelling video courses

- Six sessions
- Soil spectral modelling in R
- R codes
- Over 900 views



#SDGs #Agenda2030 #GlobalGoals

EduSoils - Soil spectral data analysis (Level I) - Introduction #1

Alex McBratney

University of Sydney



Alexandre Wadoux

University of Sydney

Publication

- Following an opinion article published in EJSS by McBride (2022) who criticises the reflectance spectroscopy for estimating the concentrations of soil constituents
- GLOSOLAN Spec. Steering Committee members wrote and published an article in EJSS
- Give to readers a more balanced and optimistic perspective of soil spectroscopy and its future.

Received: 22 May 2022 | Revised: 14 June 2022 | Accepted: 23 June 2022

DOI: 10.1111/ejss.13271

OPINION

Soil Science WILEY

Diffuse reflectance spectroscopy for estimating soil properties: A technology for the 21st century

Raphael A. Viscarra Rossel¹ | Thorsten Behrens² | Eyal Ben-Dor³ |
Sabine Chabrilat^{4,5} | José Alexandre Melo Demattê⁶ | Yufeng Ge⁷ |
Cecile Gomez^{8,9} | César Guerrero¹⁰ | Yi Peng¹¹ | Leonardo Ramirez-Lopez¹² |
Zhou Shi¹³ | Bo Stenberg¹⁴ | Richard Webster¹⁵ | Leigh Winowiecki¹⁶ |
Zefang Shen¹



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Work Plan Status



7. GLOSOLAN-Spec work plan 2021-2022

Activity	Responsible party	Deadline
General assignments		
Contact the ITPS Chair to ask for clearance on their role		Done
Collect inputs on the possibility of amendments to the GSP Soil Data Policy		Done
Inform GLOSOLAN members and working group members on the outcomes of the second plenary meeting on spectroscopy and move forward with establishing the steering committee		Done

Capacity development

Organization of a series of webinars on the topic of spectroscopy equipment, together with the use of protocols, soil spectral library, installation, spectral modelling, etc.

GLOSOLAN Spec

February to December 2022

Done

Online by Jan

<p>Developing training material:</p> <ul style="list-style-type: none"> - Reading material for the use of soil spectroscopy in soil analysis - Video courses for soil spectral modelling 	<h1>Done</h1>
<p>Training programme on the topics spectral measurement, spectral data management, spectral modeling, etc.</p> <ul style="list-style-type: none"> - Online courses - Short intensive training programmes which can be hosted by different institutes. - Cost Action plan for funding support 	<h1>Done</h1>

Gathering advanced institutes/ research groups on soil spectroscopy for national capacity development under GLOSOLAN-Spec initiative

- Inviting institutes to join this initiative
- Asking institutes to provide a short summary of their work
- Finalizing and publishing

Ongoing

Committee, WGs

expected to be online before March 2022

<p>Sending a questionnaire, to collect more detailed information about what specific technical support each lab needs for the development of soil spectroscopy. GLOSOLAN's activities can be more target orientated based on the results back from this questionnaire</p>	<p style="text-align: center;">Ongoing</p> <p>GLOSOLAN-Spec Coordinator, Chair, Steering Committee, WGs</p>
<p>Proficiency Test (PT) on Soil Spectroscopy</p>	
<p>Call for experts to join PT on soil spectroscopy</p>	<p style="text-align: center;">Done</p>

<p>Call for labs to join PT on soil spectroscopy</p> <ul style="list-style-type: none"> - Confirmation on their interests to join PT - Confirmation on their instrumental and lab capacities - call for soil samples <p>All information will be organized in a database to be used by the working groups. Follow up actions will be taken with those willing to work with GLOSOLAN</p>	<p>GLOSOLAN-First</p> <ul style="list-style-type: none"> • Ongoing (Discussed in Items 7 and 8) <p>Labs</p> <ul style="list-style-type: none"> - The first round of PT can start with regional champion labs - GLOSOLAN will be looking for soil samples and sending soil samples 	<p>July 2022</p>
<p>Potential collaboration with P4005 working group</p>	<p>GLOSOLAN-spec</p> <ul style="list-style-type: none"> • Ongoing (Discussed in Item 8) 	

Global Soil Spectral library & Estimation Service

Establishing a free estimation platform

- Engage with estimation platform developers for hosting estimation platform
- Communicating with FAO IT&LEGA department for technical and legal procedures
- Inviting few users for testing estimation platform
- Detecting and fixing technical issues of platform

• Ongoing (Discussed in Item 9)



Contacting countries or labs who have existing soil spectral libraries, and who are building or interested to build a spectral library:

- Looking for responsible individuals from the Steering Committee for each region, to support communication with labs
- Confirming lab's willingness to share part of their spectral library for the estimation service purposes
- Summarize information of all confirmed labs (e.g: contact information, data type, timeline, etc.)

• Ongoing (Discussed in Items 9)

09 | 2 - 4 November 2021



Establishing a global soil spectral library for estimation purposes

- Using open access data as starting point
- Developing a guideline for establishing a global soil spectral library for estimation service
- Sending a guideline to labs for reviewing and agreement
- Communicating with Yusuf regarding GSP data policy
- Publishing guideline

• Ongoing
(Discussed in Item 9)

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Projects and Publications

Writing project proposals and concept note to cover the following costs:

- The implementation of the National Capacity Development, including training, the program, instrument procurement, etc.
- Organization of PT among regional champion laboratories

• Ongoing

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scopy | 2 - 4 November 2021



<p>A scientific publication to report GLOSOLAN-Spec initiative</p> <ul style="list-style-type: none"> - Identify a group of scientists to join this publication - Outline the scope of this publication - Decide targeting journal - Writing 	Not Active	
<p>A responding letter to EJSS paper on behalf of steering committee</p>	Done	



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Thank you!

The logo for GLOSOLAN Spec features a series of colored dots (brown, orange, yellow, green) arranged in a curve above a blue line that resembles a pulse or heartbeat. Below this graphic, the text 'GLOSOLAN Spec' is displayed in a bold, sans-serif font, with 'GLOSOLAN' in black and 'Spec' in orange.

GLOSOLANSpec

