



Food and Agriculture
Organization of the
United Nations

Discussion of GLOSOLAN Spectroscopy Webinars Series

Dr. Cécile Gomez, IRD



Soil spectroscopy webinars

- 6 online webinars hosted in 2021
- 5 online webinars hosted in 2022

SESSION 1: An Introduction to Soil Spectroscopy

Monday, 6 September 2021 | 15:00 CET



Guest speaker: Bo Stenberg

Biography: Bo Stenberg is an associate professor in soil science from the Swedish University of Agricultural Sciences. He is the research leader at 'Precision Agriculture and Pedometrics', Department of Soil and Environment. His research interests focus on digital soil mapping and variable rate fertilizer application in precision agriculture systems, farm soil mapping, proximal soil sensing, diffuse near infrared spectroscopy for soil analysis, three dimensional soil mapping.

Abstract: This webinar will review the basic mechanisms for soil visible-near infrared (vis-NIR) spectroscopy. It will also provide information on applications related to precision agriculture and the use of large regional soil spectral libraries for estimating small scale variations.

[Register here](#) | [Details of the event](#)

SESSION 2: Soil Spectroscopy for accurate measurement of soil physical and chemical soil properties

Thursday, 16 September 2021 | 09:00 CET



Guest speaker: Budiman Minasny

Biography: Budiman Minasny is a professor in soil-landscape modelling at the University of Sydney. He is the theme leader of soil, carbon, and water at Sydney Institute of Agriculture. He is a soil scientist, previously awarded the QEII and the Future Fellowships from the Australian Research Council. He is recognized as a Highly Cited Researcher in 2019 by the Web of Science. He is passionate about the role of soil in managing climate change, food, water, energy security, and maintaining biodiversity.

Abstract: This webinar will present how soil spectroscopy can characterize extensive different soil physical and chemical soil properties.

[Register here](#) | [Details of the event](#)

SESSION 3: A future for soil spectral inference

Thursday, 23 September 2021 | 08:00 CET



Guest speaker: Alex McBratney

Biography: Alex McBratney is a world-leading soil scientist who conceived and developed pedometrics, digital soil mapping and soil security, radically strengthening the knowledge base of soil science. He established new theory and empirical models of soil variation in landscapes and developed their applications. His contributions have revolutionized the availability of soil information and led to improved agricultural practices with reduced environmental impacts and enhanced security of the world's soil.

Abstract: This webinar will present the definition and role of soil spectroscopy for laboratory as well as field measurement and will speculate on possible novel approaches.

[Register here](#) | [Details of the event](#)

SESSION 4: The Brazilian Soil Spectral Library Experience from scientific to society services

Monday, 4 October 2021 | 15:00 CET



Guest speaker: José Alexandre M. Dematté

Biography: Dr. José A. M. Dematté is currently a Full Professor in the Department of Soil Science, Luiz de Queiroz College of Agriculture, University of São Paulo, Brazil. He has basic formation in Pedology with a career in Remote Sensing Applied to Soils in last 30 years. He has extensive experience from the research world to practice in the field, agriculture industry, soil management, mapping, precision agriculture, soil tillage, productivity systems and soil laboratories. Thanks to his wide experience he can bridge the real issues with the academic thinking. Currently, he leads the Brazilian Soil Spectral Library, the Brazilian Program on Soil Analysis via Spectroscopy. He is also member of the working group of the Pronex/USP Brazilian Soil Mapping and MapBiom Programs.

Abstract: This webinar will present the 25 years' experience on constructing the Brazilian Soil Spectral Library, from scientific research purposes to the development of free estimation online service of soil analysis.

[Register here](#) | [Details of the event](#)

SESSION 5: Characterization of soil properties using French national Vis-NIR and MIR spectral libraries

Thursday, 14 October 2021 | 14:00 CET



Guest speaker: Cecile Gomez

Biography: Dr. Cecile Gomez is involved in research dealing with Vis-NIR-SWIR (400 - 2500 nm) lab, field and remote sensing imagery for soil sciences studies. She has now around 12 year experience in lab and field soil spectroscopy, and in imaging spectroscopy (airborne and satellite supports) for extraction of physico-chemical soil properties. She was and is currently P.I. and Co-P.I. in national research projects and contributes to the definition of the French hyperspectral satellite (HYPSP). She is a French Research Scientist at IRD (French Research Institute for Sustainable Development) since 2007. She is currently associated with the Indo-French Cell for Water Sciences at IISc Bangalore (India).

Abstract: This webinar will present the national soil collection provided by the French national soil quality monitoring network. Based on this national database, several researches have been conducted for 10 years to highlight the potentials and issues of such national spectral databases.

[Register here](#) | [Details of the event](#)

SESSION 6: Measuring reflectance of undisturbed soil surface in the field under laboratory quality: A protocol to assess soil properties that are sensitive to the soil sealing phenomenon

Thursday, 28 October 2021 | 15:00 CET



Guest speaker: Eyal Ben-Dor

Biography: Prof. Eyal Ben-Dor is the Head of the Remote Sensing Laboratory at Tel Aviv University (RSL-TAU), the leading group in Israel for imaging spectroscopy (IS), soil spectroscopy and remote sensing applications dedicated to soil mapping and environmental monitoring. The RSL people are experts in field and airborne campaigns at national and international levels and have gained significant experience in many different projects.

Abstract: This webinar will cover a new developed device for measuring surface reflectance in the field to fill the gap between laboratory and field spectral measurements of the soil surface.

[Register here](#) | [Details of the event](#)

If you intend to participate in the webinar(s), please register using the above links. Upon registration, you will receive an automatic reply providing you with personal username and passcode to access the session which you registered for.

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](#)



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](#)

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- A total of 8 750 registrations from 140 countries
- A total of 4 087 participants joined live session
- Questions and discussions



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GLOSOLAN Soil Spectroscopy - Webinar #2, 2022



Soil spectroscopy webinars: **Benefits**

- Opportunity to facilitate interactions between experts, new scientists, students, stakeholders ...
- Increased visibility for field of soil spectroscopy
- Forum for global discussion on spectroscopy



Direction of webinar series

- Series of presentations on more specific topics



Direction of webinar series

- Series of presentations on more specific topics
 - Based on relevant papers
 - Suggestion of Franck Albinet presenting “*Prediction of exchangeable potassium in soil through mid-infrared spectroscopy and deep learning: From prediction to explainability*”

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Contents lists available at ScienceDirect

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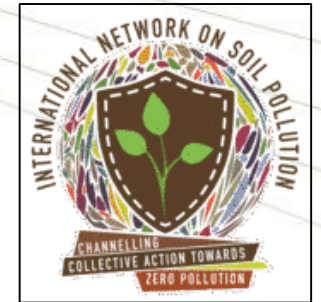
Prediction of exchangeable potassium in soil through mid-infrared spectroscopy and deep learning: From prediction to explainability

Franck Albinet ^{a,b,*}, Yi Peng ^c, Tetsuya Eguchi ^{d,b}, Erik Smolders ^e, Gerd Dercon ^a



Direction of webinar series

- Series of presentations on more specific topics
 - Based on relevant papers
- Based on other networks
 - International network on soil pollution (INSOP) / Webinars on application of spectroscopy for soil pollution analysis.



Direction of webinar series

- Series of presentations on more specific topics
 - Based on relevant papers
 - Based on other networks
- Series of presentations from Instrument Manufactures
 - Opportunity to discuss set up and upkeep of different instruments
 - Discuss benefits, limitations and challenges of instrumentation



Direction of webinar series: Language offering

- Add subtitles in existing webinars in additional language
- Offer webinars in additional languages
- Call for experts to support translation and to present and moderate non-English webinar material.



Direction of webinar series: Questions for Discussion

- Additional ideas for webinar subjects or collaborations?
- What languages are most in demand?
- Overarching: is this discussion sufficient to evaluate interest and demand or would a survey be a better measure?

Remember : Call for experts to support translation and to present and moderate non-English webinar material.





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If you have any paper or specific webinar suggestions or if you would be willing to offer assistance in translating or moderating webinars, please email the GLOSOLAN Spec. Coordinator (Magdeline.Vlasimsky@fao.org)



Thank you!

