



Application of Proximal and Remote Sensing Technologies for Soil Investigations

16-19 August 2021

Scheduled times are based on Central U.S. time, which is GMT/UTC -6 hrs.

Host time begins at 18:00 or 6:00 PM Central U.S. time.

Equivalent global times are: 4:00 PDT, 5:00 PM MDT, 7:00 PM Santiago and EDT, 8:00 PM BRT and ADT, 8:30 PM NDT, 11:00 PM UTC/GMT, 12:00 AM BST, 1:00 AM CEST, 1: 30 AM NDT, 2:00 AM EEST, 4:30 AM IST, 7:00 AM AWST and China, 8:00 AM JST, 9:00 AM AEST, 11:00 AM NZST

Lightning presentations – 5 minutes each

DAY ONE				
Session: Introduction & Overview of Traditional Proximal Sensing Methods and New Proximal-Remote Sensing Technologies				
Co-chairs:				
Start	Stop	Presentation Title	Speaker	Affiliation
18:00	18:10	<i>SEG Introduction</i>	Rick Miller	SEG
18:10	18:20	<i>Introduction</i>	Barry Allred and Craig Lobsey	USDA and
18:20	18:25	<i>An overview of the high-frequency surface wave method for proximal soil sensing</i>	Zhiqu Lu	University of Mississippi
18:25	18:30	<i>Soil Investigation with Ground Penetrating Radar</i>	Barry Allred	USDA/ARS
18:30	18:35	<i>Basics of Electrical Resistivity Tomography for Near-Surface Proximal Sensing</i>	Mark Everett	Texas A&M University
18:35	18:40	<i>Soil Sensing using Integrated Sensor Platforms</i>	Viacheslav Adamchuk	McGill University
18:40	18:45	<i>Soil magnetism and proximal soil sensing: a perspective</i>	Philippe De Smedt	Ghent University
18:45	18:50	<i>Soils, Radiometrics, Clay Properties and Applications for Mining, Geological and Catchment Mapping, Water and Agriculture</i>	Geoff Pettifer	GHD and Australia
18:50	18:55	Theory and applications of proximal sensing electromagnetic (EM) induction instruments	John Triantafilis	Landcare Research
18:55	19:00	<i>New applications of old technology: measuring soil moisture with a gamma-ray spectrometer</i>	Steven Van der Veeke	Medusa Radiometrics

19:00	19:05	<i>UAV-borne gamma-ray measurements: how low can you go Determining the optimal gamma-ray spectrometer size for UAVs</i>	Steven Van der Veeke	Medusa Radiometrics
19:05	19:10	<i>in-situ VisNIR Penetrometer System for predicting soil organic carbon</i>	Omar Murad	University of Nebraska
19:10	19:40	Chaired Group Discussion		
19:40	19:50	Break		
Session: Application of UAV, Aircraft, and Satellite Imagery for Soil Exploration				
Co-chairs: Angelos Lampousis and				
19:50	19:55	<i>Evaluating soil moisture measurements from satellite Sentinel-1 data over contrasting humid conditions in central Chile</i>	Francisco Meza	Universidad Mayor
19:55	20:00	<i>Detecting variability in saline-sodic soil using remote sensing methods in the Northern Great Plain</i>	Girma Birru	USDA/ARS, South Dakota state University
20:00	20:05	<i>Mapping soil properties and processes by combining regional lidar-derived topographic models with information from local samples</i>	Ling Du	USDA/ARS, University of Maryland
20:05	20:10	<i>Machine learning with satellite imagery to document historical changes in the extent of subsurface agricultural drainage (tile drains)</i>	Tanja N. Williamson	USGS, OH-KY-IN Water Science Center
20:10	20:15	<i>Estimation of heat balance with considering ground surface conditions in the crop field based on radiation balance and meteorological condition</i>	Mito Nishioka	Tokyo University of Agriculture and Technology
20:15	20:20	<i>HYSIMU: A Hyperspectral Simulator for Airborne Remote Sensing of Soils</i>	Fadhli Atarita	Queen's University
20:20	20:25	<i>Multiscale remote sensing technologies for monitoring cover crops and their impact on ecosystem services</i>	Sami Khanal	Ohio State University
20:25	20:55	Chaired Group Discussion		
DAY TWO				
Session: Soil Electrical conductivity Studies				
Co-chairs:				
Start	Stop	Presentation Title	Speaker	Affiliation
18:00	18:05	Introduction		
18:05	18:10	<i>Implications for Soil Moisture Estimates Based on Electrical Conductivity</i>	Gina Ginevra Pope	Temple University
18:10	18:15	<i>Year-round 4D electrical resistivity imaging to monitor the hydrodynamics of deglaciated Arctic soils</i>	Mihai O. Cimpoiasu	British Geological Survey
18:15	18:20	<i>Electrical Resistivity Tomography Monitoring for Soil Moisture Changes Under Conservation Agriculture in Southern Africa</i>	Russell T. Swift	British Geological Survey, ArGEnCo, University of Liège
18:20	18:25	<i>EM Survey Design Using Artificial Neural Networks</i>	Shariful Islam Sharif	University of Mississippi - USDA/ARS
18:25	18:30	<i>Cation exchange capacity (CEC) mapping using DUALEM-421 electromagnetic data with 2D and 3D inversion modelling</i>	Tom Zhao	University of New South Wales

		<i>comparison using linear (LR) and multiple-linear regression (MLR)</i>		
18:30	18:35	<i>Time-Lapse Electrical Resistivity Imaging resolves and quantifies subsurface drainage processes in agricultural plots following a spring thaw</i>	Troy Dobson	University of New Brunswick, Agriculture and Agri-Food Canada
18:35	18:40	<i>Mapping Shallow Depth Apparent Soil Electrical Conductivity</i>	John Lan	McGill University
18:40	19:10	Chaired Group Discussion		
19:10	19:20	Break		

Session: Soil Investigation Using GPR, TDR, or Optical Spectroscopy

Co-chairs:

Start	Stop	Presentation Title	Speaker	Affiliation
19:45	19:50	<i>Ground Penetrating Radar for Subsurface Soil Characterization in a Silvopasture System</i>	Harrison Smith	University of Arkansas
19:50	19:55	<i>Monitoring soil profile variations during rainfall events using the high-frequency surface wave method</i>	Zhiqu Lu	University of Mississippi
19:55	20:00	<i>Pavement thickness estimation and condition evaluation using ground-penetrating radar (GPR)</i>	Nikhil A Singh	Monash University
20:00	20:05	<i>Moisture content estimation in pavement layers using ground penetrating radar</i>	Kaushal Kishore	Monash University
20:05	20:10	<i>Determining interval EM wave velocities during field infiltration test from interpolated sparse CMP collected with array antenna GPR</i>	Koki Oikawa	Tokyo University of Agriculture and Technology
20:10	20:15	<i>Using the data cloud and long-range radio communication to inform irrigation management and soil-water cycle decisions</i>	Kishor Kumar	Landcare Research
20:15	20:20	<i>Determination of evapotranspiration in a maize field using the near-surface net water flux model</i>	Yutong Liu	China Agricultural University
20:20	20:25	<i>Evaluating the Accuracy and Repeatability of Commercial Seed Zone Soil Sensors</i>	Lance Conway	USDA/ARS
20:25	20:55	Chaired Group Discussion		

DAY THREE

Session: Fusion of Proximal Sensing Measurements for Soil Research

Co-chairs: Viacheslav Adamchuk and

Start	Stop	Presentation Title	Speaker	Affiliation
18:00	18:05	Introduction		
18:05	18:10	<i>Evaluating the Impact of Irrigation Water Salinity on the Amplitude of Ground Penetrating Radar Direct Ground Wave</i>	Ekapala Pathirannehelage	Memorial University
18:10	18:15	<i>Using Proximal Soil Sensors and Data Fusion to Improve Soil Organic Carbon Stock Inventorying</i>	Eric Lund	VERIS Technologies
18:15	18:20	<i>Rapid Geophysical Methods for Mapping Internal Soil Pipes in Agricultural Fields</i>	Leti Wodajo	University of Mississippi - USDA/ARS

18:20	18:25	<i>Numerical study on subsurface diagnosis in urban environments using electrical resistivity and ground penetrating radar techniques</i>	Ravin Deo	Monash University
18:25	18:30	<i>GPR and EMI Soil Investigations at an Historic Homestead in Worthington, Ohio, U.S.A.</i>	Barry Allred	USDA/ARS
18:30	18:35	<i>Validation of Soil Survey Maps using Different Proximal Soil Sensing Methods</i>	Felippe Hoffmann Silva Karp	McGill University
18:35	18:40	<i>Where should we sample? Using geophysical techniques and spatial analysis tools to improve wetlands' soil sampling plans</i>	Kennedy Okioghene Doro	University of Toledo
18:40	18:45	<i>Monitoring soil cadmium concentrations by combining portable x-ray fluorescence and reflectance spectroscopy</i>	Gautam Shrestha	Massey University
18:45	19:15	Chaired Group Discussion		
19:15	19:25	Break		
Session: Combined Use of Proximal and Remote Sensing Methods				
Co-chairs				
19:45	19:50	Map-based Variable-rate Nitrogen Application Based on Proximal and Remote Sensing Techniques	Angela Guerrero	Ghent University
19:50	19:55	Clustering-based Fusion of Proximal and Remote Sensors Data for Potato Production	Muhammad Abdul Munnaf	Ghent University
19:55	20:00	Map-based variable rate manure application in barley by data fusion of proximal and remote sensing	Jian Zhang	Ghent University
20:00	20:05	Field scale mapping of topsoil organic carbon: A comparative evaluation of machine learning and hybrid models, calibration sample size and multi-source sensor data for efficient nitrogen management	Jie Wang	University of New South Wales
20:05	20:10	Non-Destructive Techniques for Mapping Agricultural Subsurface Drainage Systems	Triven Koganti	Aarhus University, Ghent University, USDA/ARS
20:10	20:15	Spatial mapping of hydraulic conductivity at sub-paddock scale	Cameron Leckie	The University of Southern Queensland
20:15	20:20	Clay content mapping and uncertainty estimation using weighted model averaging	Dongxue Zhao	University of New South Wales
20:20	21:00	Chaired Group Discussion		
DAY FOUR				
Short Course on X				
Short Course: Sensor data management and processing			Instructors: Craig Lobsey and Stijn Dekeyser	Affiliation: The University of Southern Queensland
18:00	18:05	<i>Introduction</i>		
18:05	21:00	<i>Short Course</i>		
21:00	21:15	<i>Summarize course</i>		

Organizing Committee:

Barry Allred
Craig Lobsey

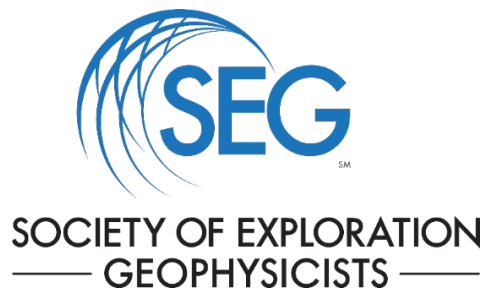
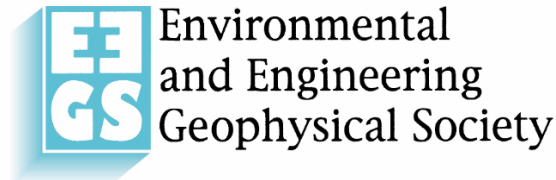
Technical Committee

Viacheslav Adamchuk
Asim Biswas
Tom Bishop
Yian Cui
Kennedy Doro
Mark Everett

Sami Khanal
Angelo Lampousis
Zhiqu Lu
Jose P. Molin
Abdul Mouazen
Raphael Viscarra Rossel

Pierre Roudier
Hirotaka Saito
Zhou Shi
Uta Stockmann
Ken Sudduth
John Triantafilis

Partnering Societies



Supporting Organization

