

# 6<sup>th</sup> International Workshop on Geoelectric Monitoring GELMON 2022, online, 22.11. - 23.11.2022



## **GENERAL WORKSHOP PROGRAM OVERVIEW**

Tuesday, Nov. 22<sup>nd</sup>

09:00 – 09:20      Workshop Opening

09:20 – 10:55      Monitoring and Hydrology

11:10 – 12:45      Monitoring of Contaminated Sites

14:00 – 15:35      Data Quality and Data Processing

Wednesday, Nov. 23<sup>rd</sup>

09:00 – 10:15      Monitoring – Technological Developments

10:40 – 13:00      Monitoring of Permafrost

14:20 – 15:55      Further Topics

15:55 – 16:15      Workshop closing

# Tuesday, Nov. 22<sup>nd</sup>

09:00-09:20	Workshop Opening		
<b>Monitoring and Hydrology</b>			
09:20-09:40	Geoelectrical and electromagnetic monitoring for saltwater penetration on the Po di Goro river (Italy)	E. Rizzo, E. Ferrari, G. Fornasari, P. Boldrin, L. Capozzoli, G. De Martino, V. Giampaolo, F. Droghetti, T. Veronesi, F. Neri, A. Bondesan	1
09:40-10:00	Assessing the performance of urban drainage systems for groundwater recharge	S. Uhlemann, C. Ulrich, S. Struck, A. Haikal, Y. Kouwonou, C. Vellinga, B. Mooney, G. Coon	2
10:00-10:20	Geoelectrical Monitoring of freshwater/saltwater interactions at the high-energy beach of Spiekeroog (DynaDeep)	N. Skibbe, T. Günther, M. Müller-Petke	3
10:20-10:40	Geoelectrical long-term monitoring with the SAMOS system using vertical electrode sections	M. Grinat, M. Ronczka, T. Günther, N. Skibbe, D. Epping, V. Kipke, M. Müller-Petke	4
10:40-10:55	<b>Discussion</b>		
10:55-11:10	<b>Coffee Break</b>		
<b>Monitoring of Contaminated Sites</b>			
11:10-11:30	3D time-lapse imagery of leachate and biogas behaviors in a landfill bioreactor by electrical resistivity monitoring	T. Debouny, D. Caterina, A.-S. Mreyen, H. Michel, Y. Forth, H. Guy, A. Fénart, F. Nguyen	5
11:30-11:50	3D borehole DC data processing and inversion for remediation monitoring	D. Domenzain, L. Liu, I. Yélamos Vela, A. V. Christiansen	6
11:50-12:10	A multiscale accuracy assessment of moisture content predictions using time-lapse electrical resistivity tomography in mine tailings	A. Dimech, A. Isabelle, K. Sylvain, C. Liu, L. Cheng, B. Bussière, M. Chouteau, G. Fabien-Ouellet, C. Bérubé, P. Wilkinson, P. Meldrum, J. Chambers	7
12:10-12:30	A review on applications of time-lapse electrical resistivity tomography over the last 30 years: perspectives for mining waste monitoring	A. Dimech, L. Cheng, M. Chouteau, J. Chambers, S. Uhlemann, P. Wilkinson, P. Meldrum, B. Mary, G. Fabien-Ouellet, A. Isabelle	8
12:30-12:45	<b>Discussion</b>		
12:45-14:00	<b>Lunch Break</b>		
<b>Data Quality and Data Processing</b>			
14:00-14:20	A collection of Jupyter Notebooks for coupled hydrogeophysical inversion of geophysical monitoring data	L. Meldgaard Madsen, J. Boyd, P. McLachlan, J. Thompson, A. Binley	9
14:20-14:40	Geostatistical regularization methods for synthetic ERT crosshole imagery	K. Tsakirmpaloglou, O. Kaufman	10
14:40-15:00	A Study of TX/Electrode Noise on ERT Measurements	D. LaBrecque	11
15:00-15:20	Quantification of connectivity in ERT images based on Euler-Poincaré-characteristic	P. Lehmann, S. Morard, C. Hilbich, C. Hauck	12
15:20-15:35	<b>Discussion</b>		

# Wednesday, Nov. 23<sup>rd</sup>

## Monitoring – Technological Developments

09:00-09:20	An efficient and low-cost measurement system for IP monitoring of deep structures by long survey line	S. Komori, R. Umezawa, S. Takakura, T. Murakita, M. Sugisaki, E. Arai, N. Shiga, M. Harada, H. Ishikawa	13
09:20-09:40	New developments of OhmPi, an open-source and open Hardware resistivity-meter	R. Clement, O. Kaufmann, H. Guyard, Y. Fargier, G. Blanchy, V. Dubois, N. Forquet	14
09:40-10:00	The GEOMON4D-IP resistivity meter - comparison to the old GEOMON4D system and improvements for monitoring applications	D. Ottowitz, B. Jochum, G. Kreuzer, S. Pfeiler, A. Ita, S. Gruber, A. Römer	15
10:00-10:15	<b>Discussion</b>		

10:15-10:40	<b>Coffee Break</b>
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## Monitoring of Permafrost

10:40-11:00	Long-term Geoelectrical Monitoring of bedrock permafrost in the Kammstollen, Zugspitze (Germany/Austria)	R. Scandroglio, M. Offer, T. Rehm, M. Krautblatter	16
11:00-11:20	Quantification of liquid phase connectivity in permafrost soils	P. Lehmann, C. Mollaret, C. Pellet, C. Hilbich, C. Hauck	17
11:20-11:40	Geophysical monitoring of hydrological dynamics across an Arctic watershed	S. Uhlemann, C. Wang, S. Wielandt, S. Fiolleau, C. Ulrich, I. Shirley, S. S. Hubbard, B. Dafflon	18
11:40-12:00	Monitoring permafrost dynamics in Antarctica with automated electrical resistivity tomography: Advances in instrumentation and data processing	M. Farzamian, T. Herring, G. Vieria, M. Esteves, C. Hauck	19
12:00-12:20	Building a Canadian database of geoelectrical surveys of permafrost: Initial time-lapse results	T. Herring, A. G. Lewkowicz	20
12:20-12:40	An international database of geoelectrical surveys on permafrost to promote data sharing, survey repetition and standardized data reprocessing	C. Mollaret, M. Farzamian, C. Hauck, T. Herring, C. Hilbich, A. Hördt, C. Kneisel, C. Pellet, R. Scandroglio, S. Uhlemann	21
12:40-13:00	<b>Discussion</b>		

13:00-14:20	<b>Lunch Break</b>
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## Further Topics

14:20-14:40	Detection of smouldering by electrical resistivity tomography	N. Afzal, T. Dahlin, S. Rejkjær, D. Madsen, T. Günther, M. Asim Ibrahim	22
14:40-15:00	Monitoring internal erosion in embankment dams using 3D Electrical Resistivity Tomography: Älvkarleby test embankment dam	R. Norooz, T. Dahlin, L. Lévy, A. Nivorolis, P.-I. Olsson, T. Günther, C. Bernstein	23
15:00-15:20	Time-lapse electrical resistivity imaging (ERI) for embankment seepage monitoring	D. Danchenko, K. E. Butler	24
15:20-15:40	On the applicability of spectral IP for the characterization of floodplain soils	P. McLachlan, H. Deng, A. Binley	25
15:40-15:55	<b>Discussion</b>		

15:55-16:15	<b>Workshop Closing</b>
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## Workshop procedure information

### GENERAL

The workshop will be held online

The workshop will start on Nov. 22<sup>nd</sup>, 09:00 a.m. and close on Nov. 23<sup>rd</sup>, 16:15 p.m.

Each presentation has a time slot of 15 minutes + 5 minutes for questions.

A Zoom conference link will be sent a few days ahead (On Nov. 21<sup>st</sup>, 9:00 am to 12:00 (noon) we will open a test Zoom conference for people wanting to check their equipment)

Due to data privacy restrictions, the workshop will not be streamed via other channels.

### DETAILS

In general the presentation (ppt or pdf) will be shared by each author on her/his own. In case of technical problems the presentation will be shared by the GELMON-team. By corresponding commands of the presenter the GELMON-team will change the slides. Therefore we ask you to send your presentation at latest one day ahead.

Questions after a talk or during the discussions can be announced by virtual hand raise or via the chat-option.

#### **Important**

Please mute your microphone when not speaking!