

PRESS RELEASE
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Smart Exploration is hitting the road running! ***Smart Exploration Solutions are presented during Canadian Exploitation Tour on 27 February – 4 March 2020***

Smart Exploration is now ready to introduce its prototypes and methodologies into the market. In February-March 2020, the project representatives will be on a Canadian Tour presenting results and innovative solutions to potential stakeholders and end-users.

Smart Exploration Project is an ambitious project with state-of-the-art solutions funded under the EU's Horizon2020 funding scheme. The project develops cost-effective, environmentally-friendly tools and methods for geophysical exploration in highly challenging brownfield and greenfield areas to address ever-increasing community and environmental issues, as well as reduce the return time on investments.

Since the inception of the project, the 27 partners comprising the project consortium have worked together to meet the challenging task of developing solutions for deep mineral exploration. The solutions have been tested and validated under diverse mining conditions (surface, underground, open pit, brownfield, greenfield). Even though these solutions are developed for mineral exploration purposes, they have cross- and multidisciplinary applications and can be used by other industries.

Tour Agenda

The Smart Exploration solutions meet their potential end-users in Canada through an exploitation tour. The project representatives are present at three events in Toronto and looking forward to introducing their prototypes to the market.

27 February: Toronto MERC-Smart Exploration Workshop on Novel Seismics and Electromagnetic Methods for Mineral Exploration

URL: <https://merc.laurentian.ca/news-standard/workshop-deep-probing-seismics-electromagnetics-mineral-exploration>

29 February: Toronto Special EAGE session at the KEGS 2020 PDAC Symposium

URL: <https://www.kegsonline.org/?dir=1&sub=&typo=news&doc=1230&action=show&title=KEGS%202020%20PDAC%20Symposium>

1-4 March: Toronto PDAC 2020

URL: <https://www.pdac.ca/convention>

Smart Exploration Solutions

Smart Exploration has developed six methodologies and five prototypes throughout the project lifetime, meaning a complete package of solutions for deep mineral exploration is available at one address.

Methodologies

- 3D frequency and time-domain electromagnetic modeling
- Thin-sheet time domain modeling and IP responses
- New solutions for near-surface problems and related deeper imaging improvements
- Generation of additional data from sparse active-source data with lower environmental impact
- Scattering/diffractivity imaging, improved resolution depth imaging

Prototypes

Three out of five prototypes have been validated and will launch in Canada.

- GPS-time synchronization system for denied environment such as underground mines
- Electromagnetic broadband frequency seismic source (E-Vib)
- Deep-probing time-domain electromagnetic helicopter-based system (HTEM).

Two out of five prototypes are currently in the last phase of development and will be launched after validation.

- Slimhole modular system for mining boreholes
- UAV-Mag-EM for fast and over difficult terrains data acquisition

Several presentations will be given during the events and the three validated prototypes will be showcased during PDAC Convention in Toronto.

Five representatives of the project will be in Toronto. Project Coordinator Alireza Malehmir from Uppsala University (Alireza.Malehmir@geo.uu.se) and Dissemination Leader Asli Onar from EAGE (aov@ege.org) may be contacted to discuss collaboration possibilities and available for one-to-one meetings.

More information about the project is available on www.smartexploration.eu

GPS-time synchronization system (*validated*)

This system provides GPS-time signal in a microsecond accuracy in denied spaces (e.g. in underground mines). With this unique system, conventional recorders used on the surface can be synchronized as an array for deep exploration inside a mining environment.



Image 1: GPS-time system

E-Vib: Electromagnetic broadband frequency seismic source (*validated*)

This system generates acoustic signals like voice speakers for seismic imaging purposes as a result of minimized distortion due to a frictionless design and a broad bandwidth at full force (2-200Hz). This allows lower in force and smaller sized sources to reach greater depths (1500lbs; >3kM). Being able to manufacture smaller sources and operate those sources with electricity than hydraulic systems, results in a much improved situation of doing seismic acquisition.



Image 2: E-Vib Seismic Source

HTEM: Deep-probing time-domain electromagnetic helicopter-based system (validated)

This system leads to an increased transmitter signal and enhanced depth of investigation. The developments include both hardware upgrades for increased signal strength and software upgrades to facilitate the low repetition rates down to 6.25 Hz.



Image 3: HTEM