

EEGS / AEG 2023 Virtual Symposium

## **“Life of Mine – Maintaining Sustainability Through Geoscience”**

*The Role of Geoscience in Mine Site Regulation, Running, Rehabilitation, Re-purposing, Retirement, and Reclamation*

**May 15-19, 2023**

**[www.minesymposium.org](http://www.minesymposium.org)**

**CALL FOR ABSTRACTS NOW OPEN**

### **Keynotes (more to come soon):**

#### **Climate Change Mitigation, the Energy Transition and the Minerals Industry**

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Climate change mitigation will require a significant decrease in the CO<sub>2</sub> emissions associated with transport and energy generation and more. However, the metal and mineral requirements for this transition are often neglected when developing plans and policy around combating climate change. In reality, moving to a low-CO<sub>2</sub> future will require significant (in some cases >500%) increases in production of key minerals and metals beyond the record levels of production the mining industry has already achieved, even if we can also increase the recycling of these commodities. A number of these metals and minerals are already generally considered critical, meaning that they are subject to significant supply chain risk. It is likely that the increases in demand as a result of the transition to low- and zero-CO<sub>2</sub> energy generation, storage and transport and the associated upgrades needed to grid and other infrastructure will be the main drivers of the minerals industry for decades to come. Secondary sources of the metals and minerals required for the energy transition such as mine waste and tailings also need to be assessed, and mining operations need to consider how they can move towards carbon neutral operations. This presentation will outline the mineral requirements for a low CO<sub>2</sub> future, why meaningful climate change mitigation will necessarily rely on the raw materials supplied by the minerals industry, and the implications of this for the future of mining and mineral and metal extraction.

#### **A Review on Applications of Time-Lapse Electrical Resistivity Tomography over the Last 30 Years:**

**Adrien Dimech, Université du Québec en Abitibi-Témiscamingue, Rouyn-Noranda, Québec, J9X 5E4, Canada and Research Institute of Mines and Environment, Québec, Canada, [adrien.dimech@gmail.com](mailto:adrien.dimech@gmail.com)**

Mining operations generate large amounts of wastes which are usually stored into largescale storage facilities which pose major environmental concerns. They must be properly monitored to manage the risk of catastrophic failures and to control the generation of contaminated drainage. In this context, non-invasive monitoring techniques such as time-lapse electrical resistivity tomography (TL-ERT) are promising since they provide large-scale subsurface information that complements surface observations and traditional monitoring tools, based on point measurements. This study proposes an overview of TL-ERT applications and developments over the last 30 years, which helps to better understand the current state of research on TL-ERT for various applications. Several recent case studies are discussed to identify promising applications for geoelectrical monitoring for (i) improved metal extraction, (ii) economical wastes mapping, (iii) contaminated drainage characterization, (iv) geotechnical stability monitoring and (v) geochemical stability monitoring. Reference libraries have also been created and made available online to facilitate future research on mining wastes using TL-ERT. The review considers recent advances in instrumentation, data acquisition, processing and interpretation for long-term monitoring. It also draws future research perspectives and promising avenues which could help to address some of the potential challenges that could emerge from a broader adoption of TL-ERT monitoring for mine waste rock piles (WRP) and tailings storage facility (TSF) monitoring.

**Tentative Planned Program** - Seeking single and multi-disciplinary mining geoscience research and case study contributions within 6 themes:

- Mine engineering, operation, monitoring and expansion,
- Environmental Concerns and permitting,
- Regulatory Water and soil management,
- Rehabilitation, re-purposing of historical mines (e.g., re-processing of mine wastes for critical minerals),
- Closure and reclamation planning and implementation, and
- Education Toward Future Mining Geoscience Practice.

**Educational Day** - Planning is underway for a schools-focused day to raise awareness to the new generation of aspirational scientists of the attractiveness and value of geosciences servicing mining as a profession, that will be positively contributing towards a sustainable climate change and zero carbon future.

**Sponsorship Opportunities** - Sponsoring builds lasting recognition and good will for your company and is crucial to the success of the event.

**Gold Sponsor Package \$5000** - Four Symposium Registrations; Exclusive Sponsorship of a half day (two technical sessions) or final day of the Mining Geoscience Education and Career Focus day; Ability to co-moderate the session; listing in the Symposium Program available to all attendees; logo with link to your website on the Symposium website; and full Page Ad in the Symposium Program

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