

EGU22-6575, updated on 14 Aug 2022

<https://doi.org/10.5194/egusphere-egu22-6575>

EGU General Assembly 2022

© Author(s) 2022. This work is distributed under the Creative Commons Attribution 4.0 License.



## **Creating a database of electrical resistivity tomography surveys of permafrost in Canada and establishing best practices for data processing and sharing**

**Teddi Herring** and Antoni Lewkowicz

University of Ottawa, Canada

Electrical resistivity tomography (ERT) is a geophysical method that produces an estimate of subsurface resistivity distribution, which can be used to infer the presence and extent of frozen ground. Repeated ERT surveys indicate how subsurface temperature and ground ice conditions are changing over time, which is particularly important for evaluating the changes and risks associated with climate change. However, there is no existing framework for sharing ERT data and datasets are rarely published, making it difficult to find and use historical data to assess subsurface changes. To facilitate data sharing, we are developing a Canadian database for ERT surveys of permafrost.

A key component of this project is the development of an automated ERT data processing workflow to prepare datasets. Establishing best practices for data processing ensures that ERT results are optimized and standardized, which is essential so that changes in subsurface conditions can be reasonably interpreted. We also present our web-based data visualization tool that allows for targeted searching of surveys and plotting of selected results. By storing ERT data in a standardized and accessible way, our goal is to facilitate interpretations of permafrost change on a range of spatial and temporal scales and guide future research in permafrost science.