Under a cooperative project between MTRI and UAF, we have created a flexible and map-based Mineral Occurrence Revenue Estimation and Visualization (MOREV) tool for existing and planned Alaska and Canadian railroads, including the proposed Alaska-Canada Rail Link. Estimates of carbon emissions for multimodal shipping of mineral commodities are included in a flexible tool module.

MOREV uses existing high-quality geospatial data on metallic and non-metallic mineral resources, and other commodities for Alaska, Yukon, and British Columbia to estimate potential future revenues under pre-defined and user-generated scenarios within the existing and future railroad corridors in the region.

Within the tool, users are able to select particular resource types and locations to retrieve what the estimated extractable resource amounts, rail freight, and associated revenue would be if an operational railroad existed nearby. Potential railroad routes can be displayed and customized by users to quickly evaluate the enhanced economic feasibility of currently stranded resources.

Fig. 1 (above): Example of the MOREV tool input tables, used to calculate revenue scenarios and transportation carbon emissions.

Fig. 2 (above): The Alaska Railroad, part of the network, along with proposed ACRL routes, that the tool uses for a multi-modal shipping network for mineral and related freight.

Fig. 3 (left): The GIS interface to the MOREV tool, showing mineral deposit locations in Alaska, Yukon, and B.C.
Transportation Carbon Accounting Module (TCAM):

With the recent increased focus on energy efficiency and carbon accountability, the revenue estimation tool also incorporates carbon accounting to help users minimize carbon footprints. This includes calculating carbon footprints of user-selected multi-modal networks to ship mineral and supporting freight to continental and international destinations.

Collaborators:

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