

SEG 2026 Conference in Salt Lake City, United States

Framework Geoscience Data for Critical Mineral Mapping Across the United States Under the USGS Earth Mapping Resources Initiative (Earth MRI)

Jamey Jones¹

¹U.S. Geological Survey, Anchorage, United States

The USGS Earth Mapping Resources Initiative (Earth MRI) acquires modern, high-quality geoscience data to support national critical mineral mapping. Earth MRI started 2019 and was significantly enhanced beginning in 2022 by supplemental funding from the Infrastructure Investment and Jobs Act to “accelerate efforts to carry out the fundamental resources and mapping mission of the United States Geological Survey by (1) providing integrated topographic, geologic, geochemical, and geophysical mapping; (2) accelerating the integration and consolidation of geospatial and resource data; and (3) providing interpretation of subsurface and above-ground mineral resources data.” Additionally, Congress instructed USGS to map the Nation’s critical mineral resources, both in the subsurface and in surface (e.g., mine waste) materials over the next 10 years. Earth MRI partners with state geological surveys and collaborates with other Federal, State, Tribe, and private sector partners and stakeholders where possible. Earth MRI is providing a transformational opportunity for the geoscience community to generate new detailed geologic maps, perform large-scale reconnaissance geochemical surveys on mineral systems that are widely dispersed across regional terranes, conduct new regional and high-quality airborne geophysical and hyperspectral remote sensing surveys, boost lidar-based geologic mapping, and inventory legacy and active mine sites and examine critical mineral abundances in mine waste. This contribution describes the national-level context for Earth MRI data collection, highlights the current portfolio of pre-competitive geoscience data, and solicits community feedback for data needs, priorities, and strategic directions. All published data and reports for Earth MRI can be found at <https://usgs.gov/special-topic/earthmri>.