



Airborne Electromagnetic (AEM) Survey FAQ

From now until the end of July, Helicopter AEM surveys will be conducted over northeastern Minnesota. This is part of a larger survey covering portions of Michigan's Upper Peninsula and Northern Wisconsin (see map on page 2).

What are AEM Surveys for?

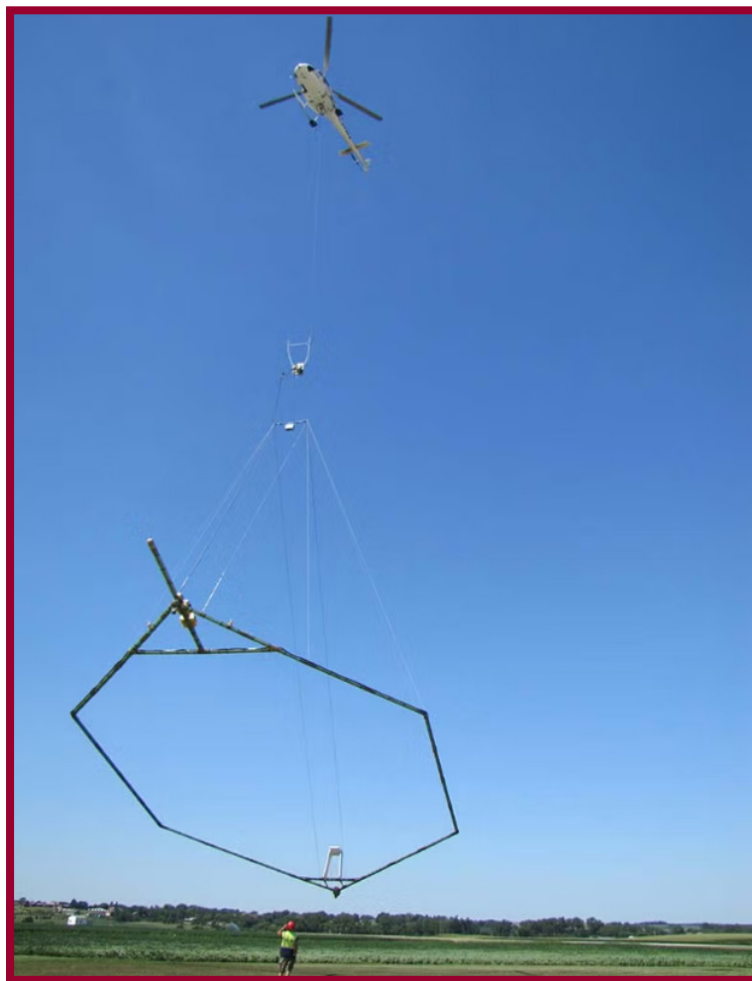
An AEM (Airborne Electromagnetic) survey is a way to rapidly and efficiently collect subsurface (underground) geologic data **without requiring disruptive and expensive drilling**. The survey can reach depths up to 500 meters (1640 feet, ~1/3 mile) below the land surface. AEM surveys have applications to **mineral and groundwater resource exploration** as well as general geology.

How does it work?

AEM surveys are typically conducted by a **helicopter** towing a large hoop-shaped sensor. Scientists generate an **electromagnetic signal** in the towed hoop and measure the response from underground.

Are there health risks? Environmental risks?

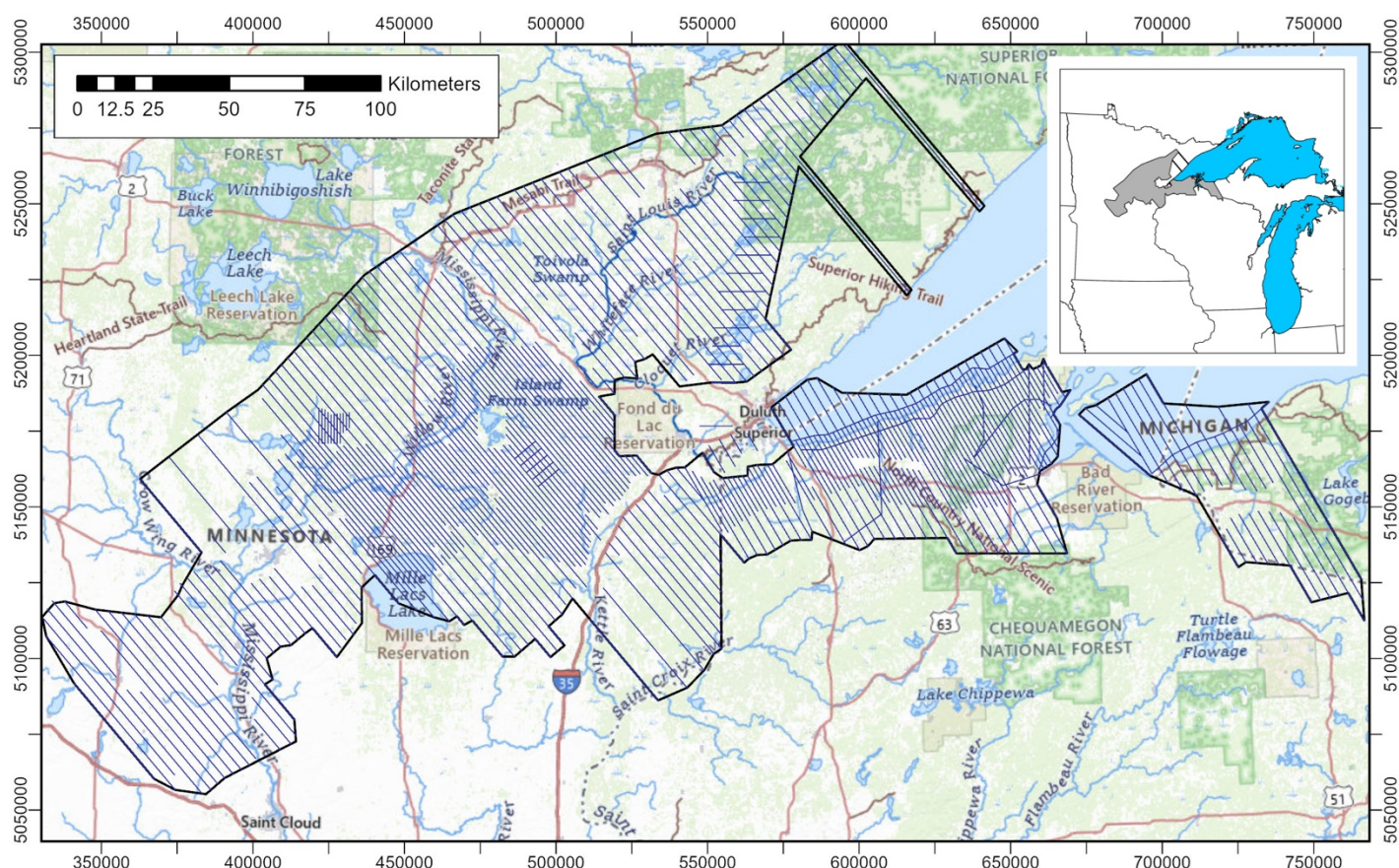
Unlike X-Rays or UV rays, the electromagnetic signal used in AEM surveys is **not harmful to plants, animals or humans** and is considerably weaker than signals around us every day (like broadcast radio). The most disruptive impact of the survey is the noise and visual of a helicopter towing the survey hoop, which is typically flown a few hundred feet above the land surface. The helicopter **avoids flying over urban areas, homes, or structures containing people or livestock**.



*Hoop-shaped geophysical device suspended below the helicopter.
Photo from Lewis and Clark Natural Resources District, Nebraska.
<https://lcnrd.nebraska.gov/airborne-electromagnetic-aem-survey>*

Is the information publicly available?

Yes. Once assembled and processed, data collected by the United States Geological Survey (USGS) and/or the Minnesota Geological Survey (MGS) are available on or linked to on the MGS website.



Map showing the location of the survey over Michigan, Wisconsin, and Minnesota.

<https://www.usgs.gov/news/state-news-release/media-alert-low-level-helicopter-flights-image-geology-lake-superior-basin>



Preparing the hoop-shaped geophysical device for surveying. Photo from Lewis and Clark Natural Resources District, Nebraska.

<https://lcnrd.nebraska.gov/airborne-electromagnetic-aem-survey>

Additional Information

USGS Press Release: <https://www.usgs.gov/news/state-news-release/media-alert-low-level-helicopter-flights-image-geology-lake-superior-basin>

General footage of the surveying equipment:

<https://www.youtube.com/watch?v=qSTddNgnjuk>

Example of how to view and use the data: <https://www.youtube.com/watch?v=6fbCZLgQPI8>

MGS open data portal website: <https://mngs-umn.opendata.arcgis.com/>