FOR IMMEDIATE RELEASE

Wisconsin Geological Survey Launches World's First Fully Accessible Digital Geological Map

Madison, WI – January 2026 – The Wisconsin Geological Survey at the University of Wisconsin-Madison has released the Quaternary Geology of Wisconsin map, the first geological survey map in history to achieve full accessibility compliance for blind, low vision, colorblind, mobility impaired, and illiterate users.

The groundbreaking map, created in partnership with XR Navigation, transforms 57 categories of geological features into an interactive experience accessible through vision, audio, keyboard navigation, screen readers, or any combination of these methods. The geographic data is stored in ArcGIS and displayed in XR Navigation's Audiom map viewer.

"Most maps are visual only, which is not useful to someone who is totally blind," said Caroline Rose, Cartographer and GIS Specialist at the University of Wisconsin-Madison. "After attending a workshop on map accessibility, I realized we needed to do better."

A Legal and Technical Milestone

The map represents the first geological survey publication to fully comply with ADA Title II, Section 508, Section 504, and WCAG AA accessibility standards. Unlike alternative text descriptions or data tables, it preserves essential spatial information including distance, direction, shape, orientation, size, and topological relationships.

Users can explore Wisconsin's geological history through multiple pathways: visual users see traditional map colors and patterns, blind users navigate with audio cues and screen reader descriptions, keyboard-only users select features without a mouse, low vision users zoom without breaking the interface, and colorblind users distinguish features through text labels, patterns, and audio.

"We grouped features based on geological relationships," Rose explained. "For instance, deposits from the Superior basin are presented together, and the grain size, from fine clay to large boulders, is conveyed through distinct sonic textures."

The map integrates seamlessly with existing ArcGIS infrastructure. Any updates to the source data automatically appear in the accessible map without manual conversion.

Impact and Recognition

The Wisconsin Geological Survey is developing accompanying educational content for K-12 schools across Wisconsin to use the map as a reference document for learning about the state's geological history.

Rose presented the project at the North American Cartographic Information Society (NACIS) conference in October 2025. The map has been submitted for the 2026 Sonification Award, and other state geological surveys have expressed interest in similar projects.

Current estimates suggest that 1.6 billion people worldwide cannot access digital maps due to disabilities or literacy barriers. For government agencies, inaccessible maps represent both a legal risk and a missed opportunity to serve the public. Beyond compliance, accessible maps open professions in geology, climate science, epidemiology, urban planning, and environmental science that have historically been closed to people with disabilities.

Access the Map

The Quaternary Geology of Wisconsin map is publicly accessible at:

https://xrnavigation.io/audiom-wisconsin-geological-survey-quaternary-map/

An interactive demo of the Audiom technology is available at:

https://xrnavigation.io/audiom-demo

About the Wisconsin Geological Survey

The Wisconsin Geological Survey, based at the University of Wisconsin-Madison, provides geological information and services to support informed decision-making about Wisconsin's natural resources and environment.

About XR Navigation

XR Navigation develops accessible technology solutions that make spatial information available to all users. The company's Audiom platform enables government agencies, universities, and organizations to create fully accessible digital maps that comply with ADA, Section 508, Section 504, and WCAG AA standards.

Media Contact

Caroline Rose Cartographer and GIS Specialist Wisconsin Geological Survey University of Wisconsin-Madison caroline.rose@wisc.edu

Brandon Biggs CEO, XR Navigation brandon.biggs@xrnavigation.io

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Glossary of Technical Terms

ADA (Americans with Disabilities Act): Federal civil rights law prohibiting discrimination against people with disabilities, including in digital accessibility. There are five sections or "titles" that cover different areas, such as Employment, Public Services, and Public

Accommodations. In April 2024, the Department of Justice published a new rule requiring all Public web content (Title II), explicitly including maps, to follow the Web Content Accessibility Guidelines level AA.

ArcGIS: Geographic Information System (GIS) software platform developed by Esri, widely used by government agencies for mapping and spatial analysis.

Audiom: XR Navigation's accessible map viewer that allows users to access maps through vision, audio, text, or any combination of these modalities.

Grain Size: In geology, the diameter of individual particles in sediment or rock, ranging from clay (smallest) to boulders (largest).

Quaternary Geology: The study of geological features and deposits from the Quaternary Period (the last 2.6 million years), including glacial features.

Section 504: Part of the Rehabilitation Act of 1973 requiring federal agencies and programs receiving federal funding, in particular most educational institutions, to be accessible to people with disabilities.

Section 508: Amendment to the Rehabilitation Act requiring federal agencies to make electronic and information technology accessible to people with disabilities.

Sonification: The use of non-speech audio to convey information or represent data.

Spatial Information: Information about location, distance, direction, shape, size, and relationships between geographic features.

WCAG (Web Content Accessibility Guidelines): International standards for making web content accessible to people with disabilities, with levels A, AA, and AAA (most accessible).