A new way of looking at, and mapping, bedrock:

Redefining traditional bedrock maps to address water asset issues:
The hydrostructural domain map of the Ayer quadrangle, northeastern Massachusetts

The Fracture Data

The Geographic Distribution

The Interpretation

What are we doing?
Why are we doing it?
The result?
Fracture characterization
Increased use of fractured bedrock aquifers in New England
New geologic units based on fracture characteristics

Department of Geosciences

Analysis, compilation, and digital cartography by Joseph P. Kopera, Stephen B. Mabee and

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Why are we doing it?

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The Hydro-Structural Domain Map is a summary map that represents the synthesis of 2980 brittle fracture measurements collected in the Ayer quadrangle. The measurements were made using a digital hand-held fracture measurement device and included the orientation, surface projection angle, and fracture type of each fracture. The fractures were classified into three types: open fractures, closed fractures, and fractures with varying aperture. The fractures were then mapped onto a geological map of the area to create the Hydro-Structural Domain Map.

The Hydro-Structural Domain Map is an important tool for understanding the hydrogeology of the area. The map shows the distribution of fractures and their relationship to the underlying geology. The map also shows the location of groundwater aquifers and the potential for fractured bedrock. The map is an important tool for water resource managers and engineers who are trying to understand the hydrogeology of the area and plan for future water resource development.

This map was created by Joseph P. Kopera, Stephen B. Mabee, and Joseph M. Kopera. The map was created using ArcGIS software and a digital hand-held fracture measurement device. The map is available for download from the website of the Massachusetts Office of the State Geologist.