New York State Museum & Science Service
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New York State Geological Survey
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BEDROCK TOPOGRAPHY OF MADISON COUNTY, NEW YORK

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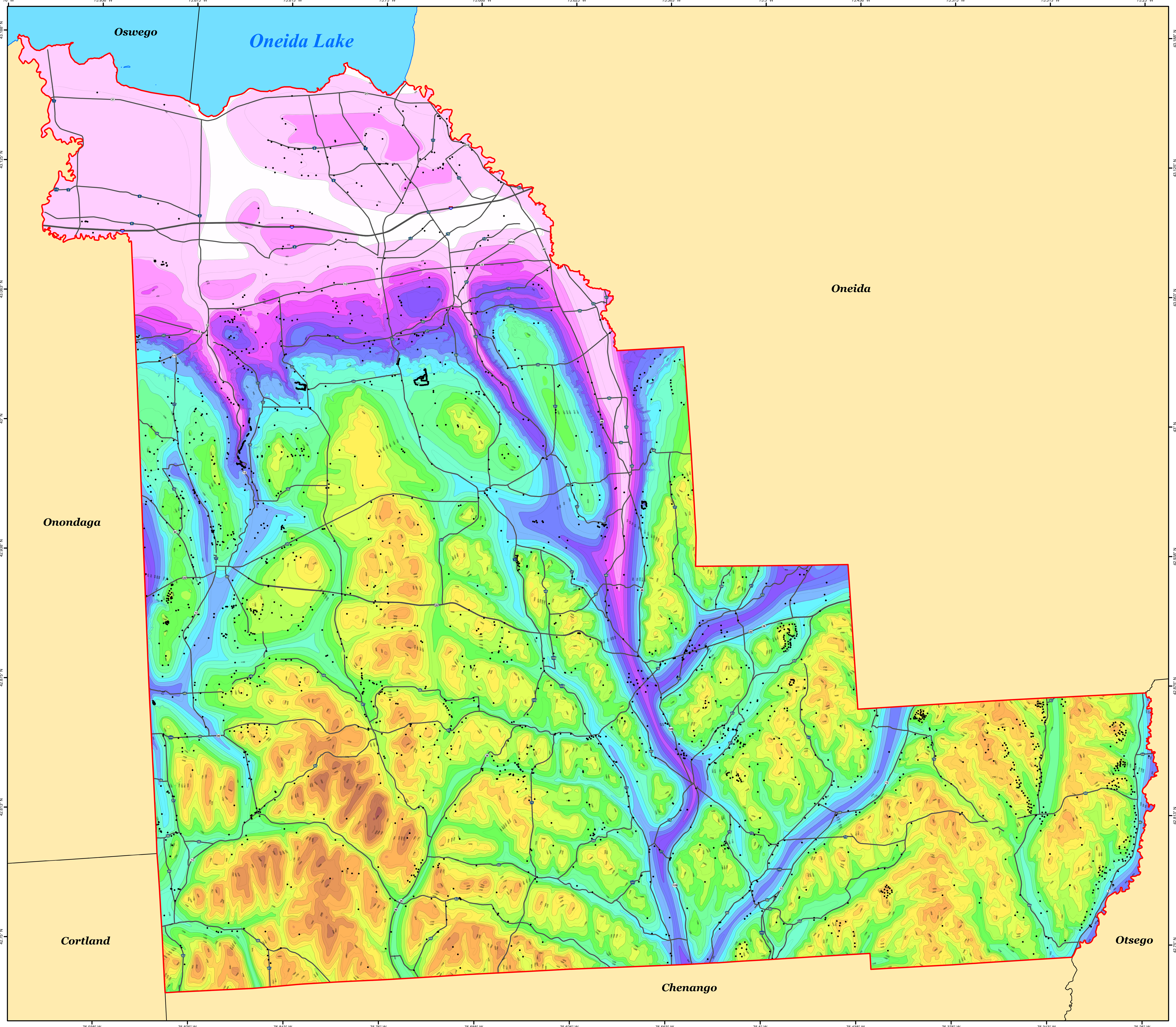
2026



SCALE 1:100,000

Kilometers 0 2.5 5 10 15 20
Meters 0 10,000 20,000
Miles 0 1 2 4 6 8
Feet 0 5,000 10,000 20,000 30,000 40,000

Digital Data and Cartography by H. Forgeng, S. Grasing and K. Backhaus, 2022-2026

Universal Transverse Mercator, Zone 18 N North American Datum of 1983

Geographic data obtained from the NYSGIS Clearinghouse:
(https://gis.ny.gov/)

NOTICE

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Disclaimer: Geologic Map Rasters

Elevation colors on this map may display minor inaccuracies resulting from the rasterization process. For correct elevation details, refer to the contour data.

Introduction

Beginning in 2019, under the guidance and funding provided by the United States Geological Survey - Great Lakes Geological Mapping Coalition (award G20AC00338), the New York State Museum - Geological Survey began a statewide effort to conduct geologic mapping of bedrock elevations throughout New York. Madison County, of Central New York, is in the physiographic provinces of the Allegheny Plateau and the central lowlands. The county is adjacent to Chenango, Cortland, Oneida, Onondaga and Oswego counties. Madison County is also located along the southern shoreline of Oneida Lake. Surficial and subsurface bedrock point data and maps were compiled from publicly available sources, vetted, and organized into a comprehensive geospatial database. A technical workflow was developed to categorize the overall geology and differentiate between the underlying bedrock and overlying unconsolidated sediments. The resulting bedrock elevation map provides a detailed representation of bedrock topography across Madison County. This map is useful for various applications, including geological studies, engineering and construction, natural resource management (such as water or mineral resources), and environmental studies.

Methodology

A total of 2,919 bedrock control points were used to delineate bedrock topography in Madison County. These points consisted of 1,838 water wells, 1,063 bedrock outcrops, 17 engineering boreholes, and one oil and gas well. These data were compiled from a variety of public sources and imported into ESRI's ArcMap 10.8/ArcPro 3.2.2 software platform. Ground surface elevations for all control points were extracted from a compilation of three separate digital elevation models (DEM) which were resampled to match a 1-meter LIDAR DEM cell size. Bedrock elevations were calculated at each location by subtracting the depth-to-bedrock from the ground surface elevation. 50-foot bedrock elevation contours were auto-generated and manually refined through a multi-step quality control process to resolve any interpolation errors. The finalized contours were converted into a 1-meter raster, using the "Topo to Raster" tool, that represents county-wide bedrock topography. Lastly, the "Raster Calculator" tool is used to subtract the surface elevation from the bedrock elevation to determine the thickness of the drift in the county.

Explanation

- Data Point
- 50ft Bedrock Elevation Contour
- 100ft Bedrock Elevation Contour
- Highway
- Madison County Line
- Adjacent Counties
- Water Body

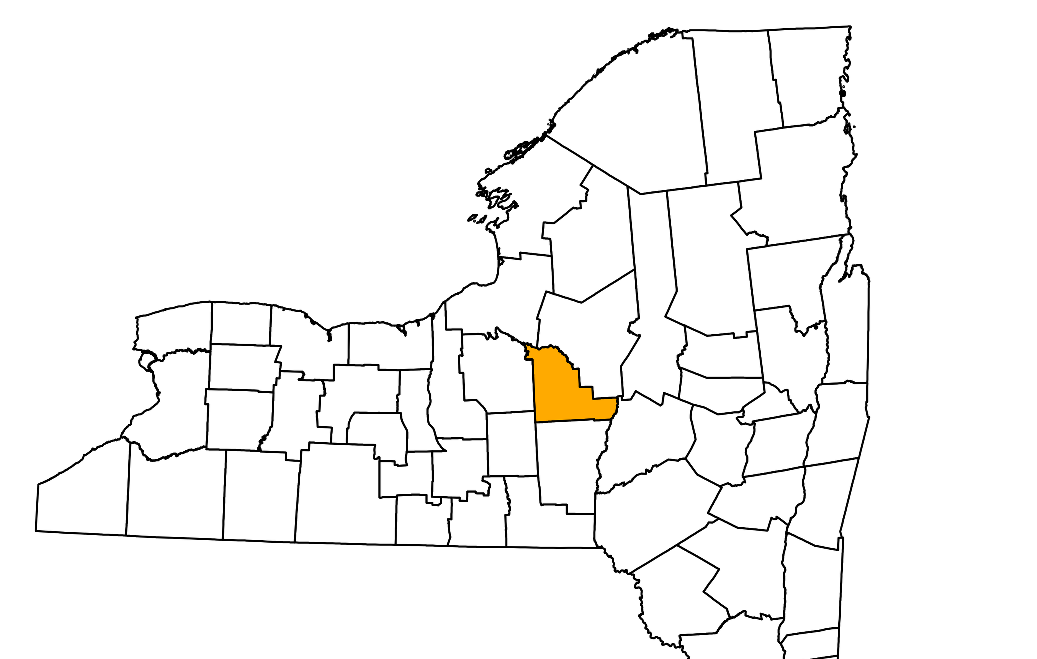
Bedrock Topography

Feet-amsl

- 200 - 300
- 300 - 400
- 400 - 500
- 500 - 600
- 600 - 700
- 700 - 800
- 800 - 900
- 900 - 1,000
- 1,000 - 1,100
- 1,100 - 1,200
- 1,200 - 1,300
- 1,300 - 1,400
- 1,400 - 1,500
- 1,500 - 1,600
- 1,600 - 1,700
- 1,700 - 1,800
- 1,800 - 1,900
- 1,900 - 2,000
- 2,000 - 2,100
- 2,100 - 2,150

Summary

The New York State Museum – Geological Survey has developed a detailed Bedrock Topography Map for Madison County. This map represents a compilation of various surficial and subsurface bedrock data sources, analytical methods, and quality control procedures. The resulting bedrock elevations reveal a range of distinct geological features including a variety of Paleozoic bedrock erosional profiles, and evidence of past glaciation. These characteristics are likely the result of a variety of functions including bedrock stratigraphy, structural deformation, and erosional processes such as past glaciation and fluvial geomorphology. This map is significant for applications in geological research, engineering, natural resource management, and environmental studies. Continued research and work on subsurface geology will provide additional data and insight and enhance the geologic framework of bedrock geology throughout New York State.



COUNTY LOCATION

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