

DRIFT THICKNESS OF
FULTON COUNTY, NEW YORK

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Introduction

Beginning in 2019, under the guidance and funding provided by the United States Geological Survey - Great Lakes Geological Mapping Coalition and STATEMAP program, the New York State Museum - Geological Survey began a statewide effort to conduct geologic mapping of bedrock elevations and thickness of drift across New York. Fulton County, of eastern New York, located within the Mohawk River Valley and Adirondack Mountains physiographic provinces. The county is surrounded by four counties: Hamilton, Herkimer, Montgomery, and Saratoga Counties. Surficial and subsurface bedrock point data and maps were compiled from publicly available sources, vetted, and organized within a comprehensive geospatial database. A technical workflow was developed to categorize the overall geology and differentiate underlying bedrock elevation from the overlying unconsolidated sediments. The resulting bedrock topography map are then used to create the drift thickness map. 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 2,020 bedrock control points were used to delineate bedrock topography in Fulton County. These points consisted of 1,988 water wells, 18 engineering boreholes, and 14 known bedrock outcrops. These data were compiled from a variety of public sources and imported into ESRI's ArcGIS Pro 3.4.3 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 countywide 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.

Summary

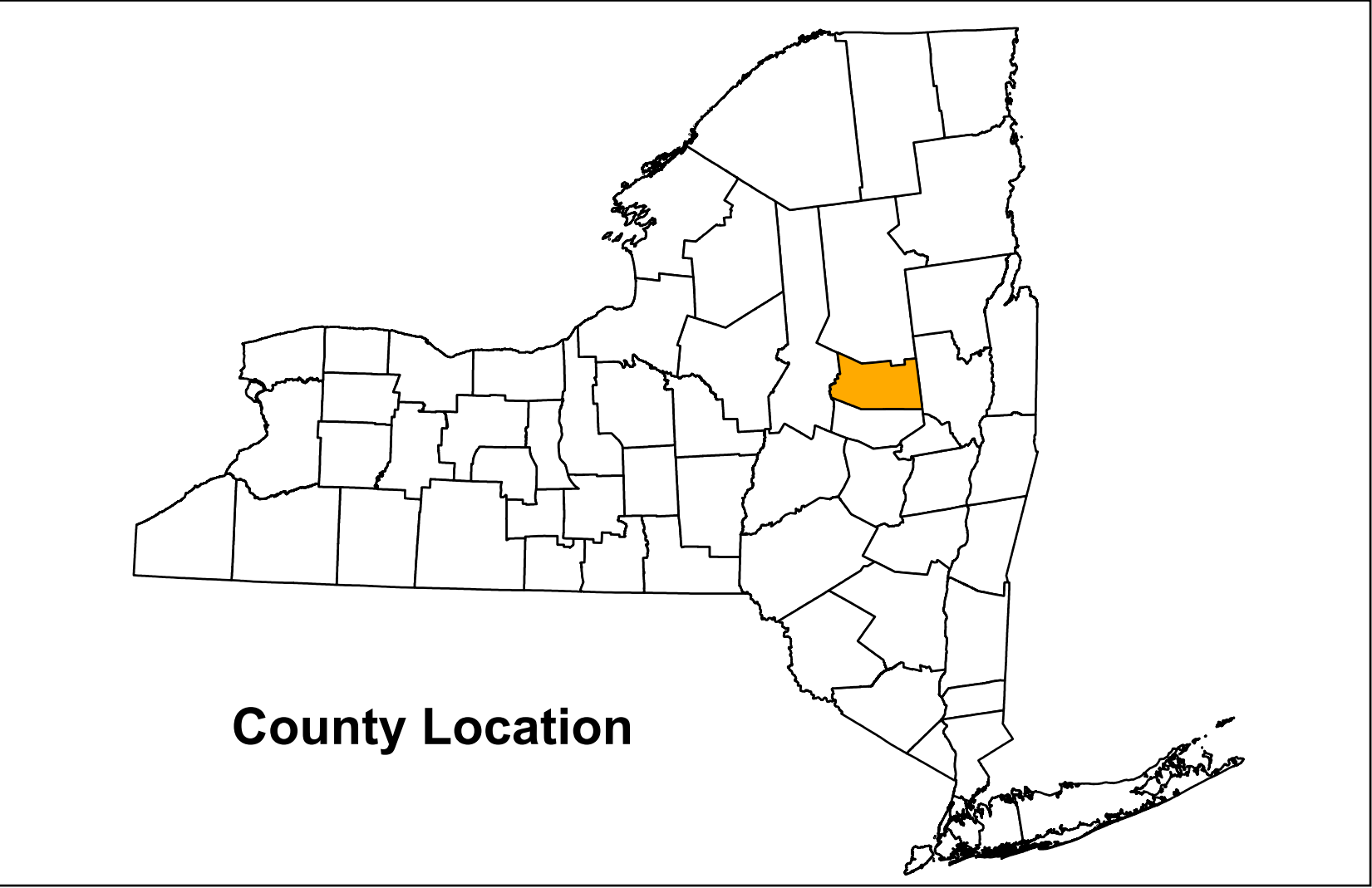
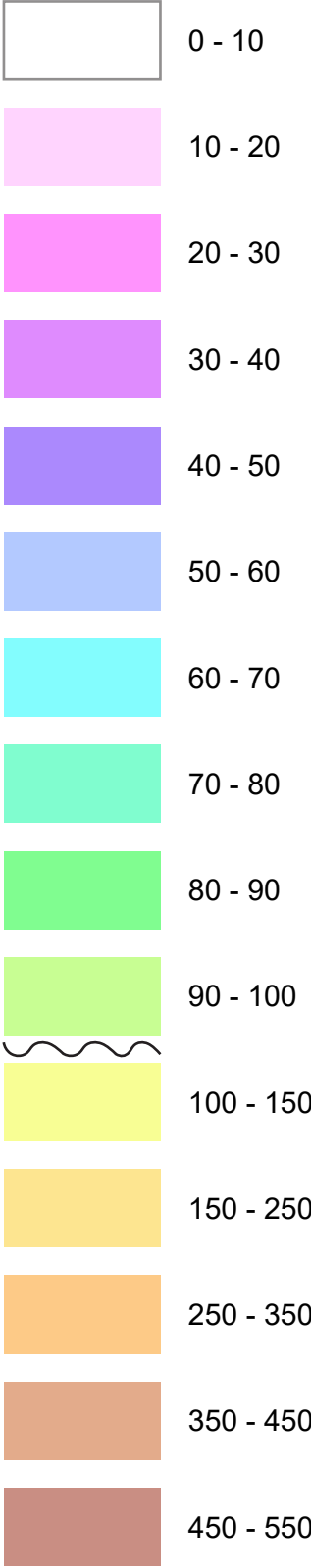
The New York State Museum – Geological Survey has developed a detailed Drift Thickness Map for Fulton County. This map represents a compilation of various surficial and subsurface bedrock data sources, analytical methods, and quality control procedures. The resulting bedrock elevations reveal a range 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.

Explanation

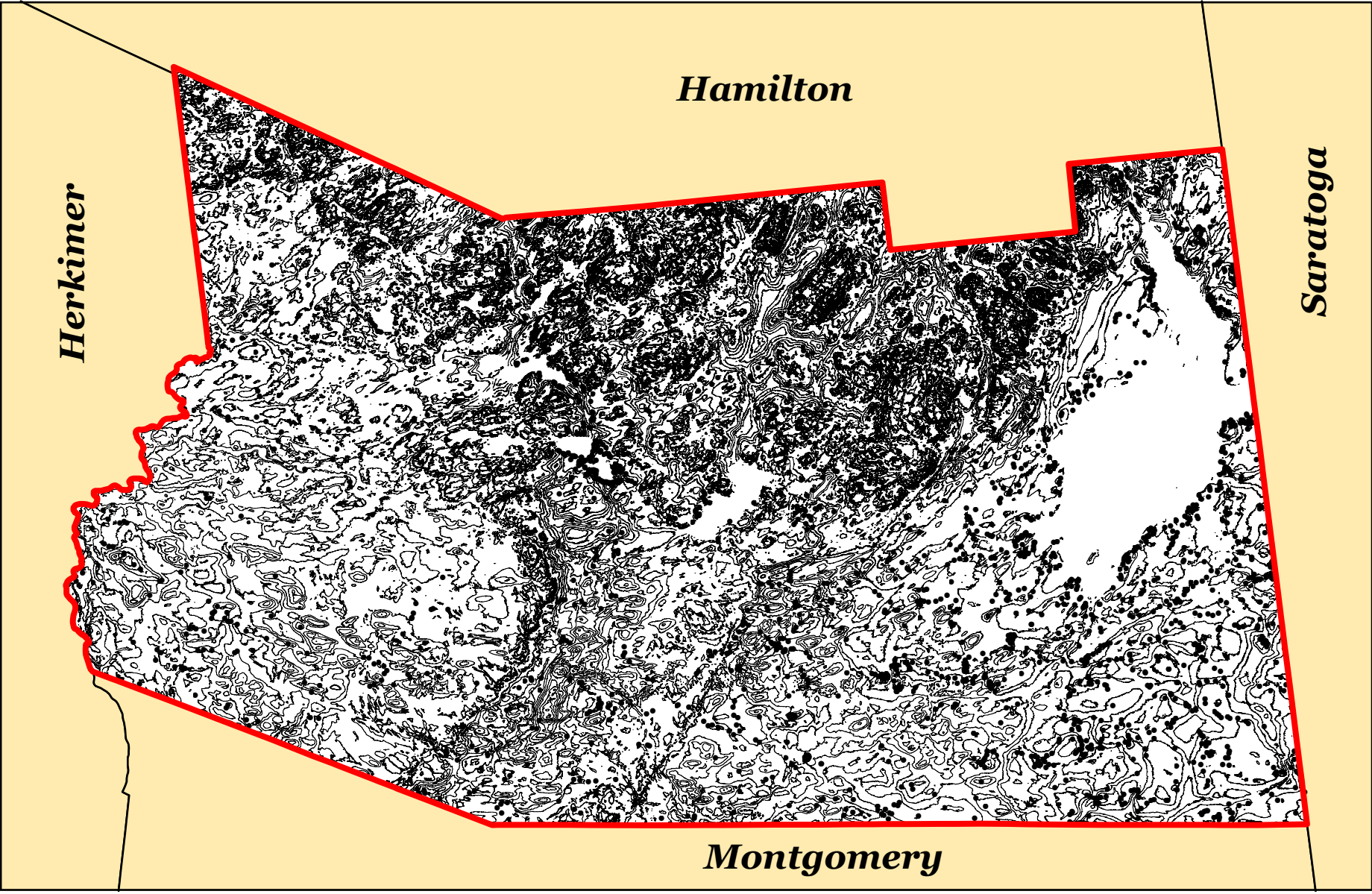
- Data Point
- 50ft Drift Thickness Contour
- 100ft Drift Thickness Contour
- Highway
- Water Body
- Fulton County Line
- Adjacent County

Drift Thickness

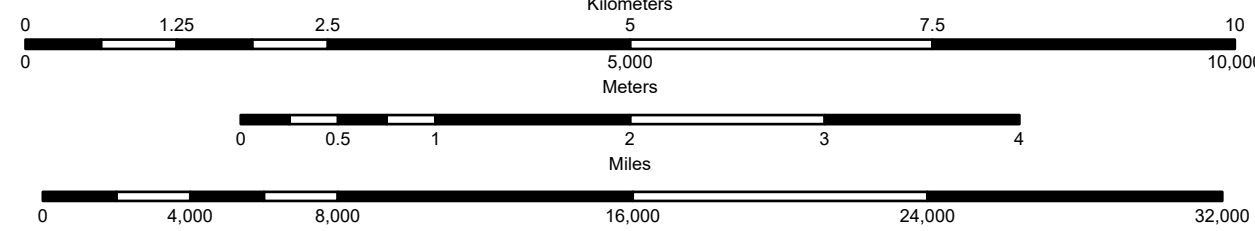
Feet Thick



Drift Thickness Contour Map



SCALE 1:62,500



NOTICE
This package map was created in part by the USGS National Cooperative Geologic Mapping Program (NCGMP) project number G84000418 in the year 2020.
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