Bedrock Topography of Murphysboro Quadrangle
Jackson County, Illinois

Illinois Department of Natural Resources
ILLINOIS STATE GEOLOGICAL SURVEY
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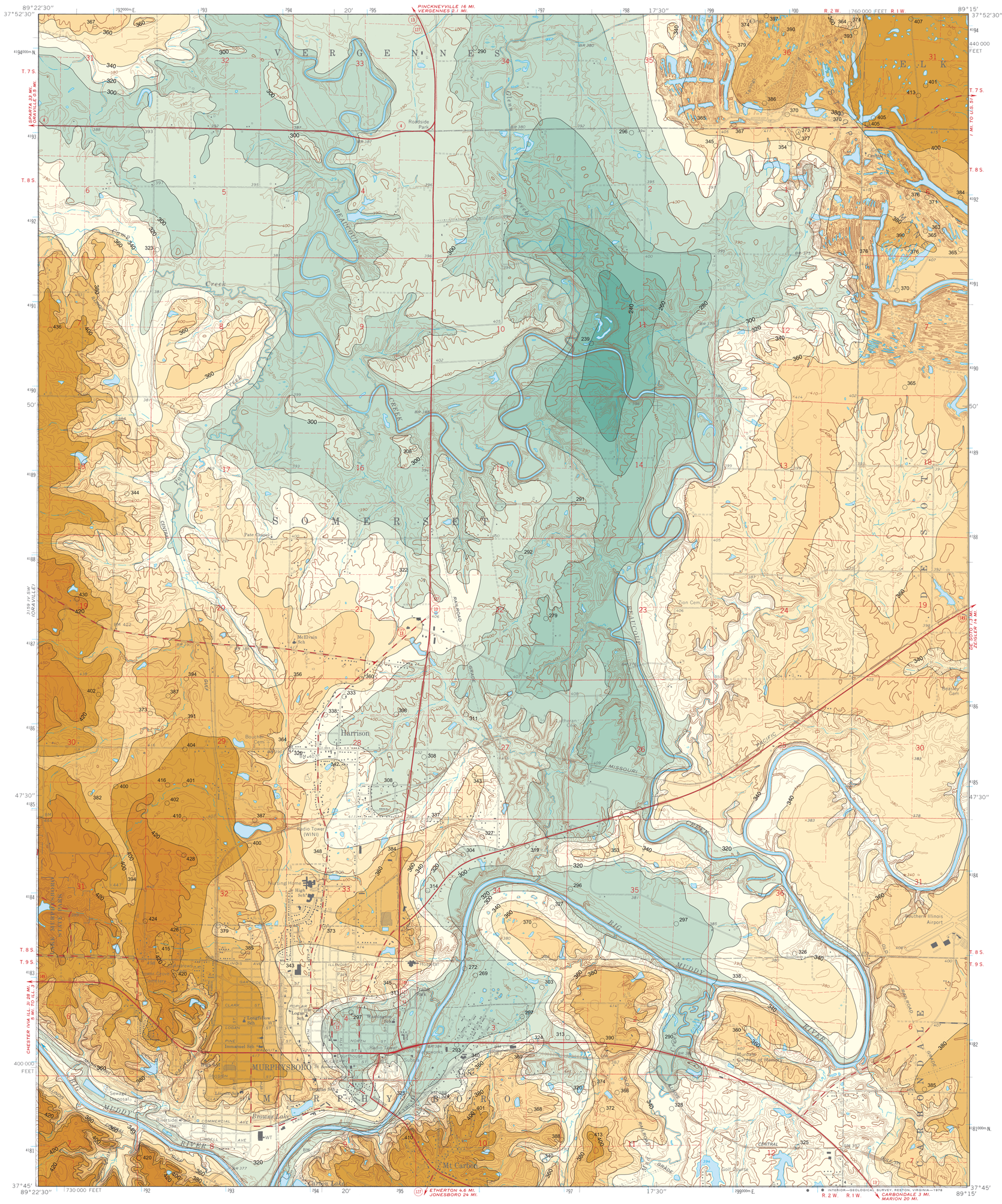
Illinois Preliminary Geologic Map
IPGM Murphysboro-BT

Gary W. Griffith, F. Brett Denny, and Russell J. Jacobson
2008



Bedrock Topography

The map shows the topography on the top of the bedrock surface in the Murphysboro Quadrangle (Jackson County, Illinois). The topography of the bedrock was formed in part by scouring erosional processes during preglacial and interglacial times and subsequent glacial activity. The bedrock surface lies beneath the younger surficial sediments of glacial diamicton, lake bed deposits, and loess. This map was produced from both well and outcrop data. The well data points labeled on this map are on file at the Illinois State Geological Survey (ISGS) Geological Records Unit. A bedrock geologic map of this quadrangle is also available from the ISGS (Jacobson et al. 2007).

In general, the bedrock surface follows the current drainage pattern of the region. The dominant subsurface feature is a broad valley trending southeasterly through the center of the quadrangle. This probably is a result of Pleistocene glacial activity. The bedrock surface is above 400 feet mean sea level along the southern and western portion of the quadrangle where glacial cover is relatively thin. South of Murphysboro the bedrock topography generally parallels the surface topography. The Big Muddy River has cut a path through the bedrock and flows in a general easterly direction across the southern portion of the map sheet near Murphysboro. Northeast of Murphysboro the glacial sediments thicken to well over 100 feet. This thick accumulation of unconsolidated sediment occurs along the present drainage of Beaucoup Creek. The data is sparse in this region but one well (Sec. 11, T8S, R2W) reaches the top of bedrock at 239 feet above mean sea level. Several other wells indicate the top of the bedrock surface is between 280 to 300 feet above mean sea level. The bedrock surface rises to approximately 400 feet on the northeast side of Glenn Creek where 10 to 30 feet of unconsolidated sediment are present over bedrock. In this region surface and underground coal mining activities have provided data to fairly accurately plot the bedrock surface.

Methodology

The contour lines, which reflect the relief of the bedrock surface, are labeled as feet above mean sea level. These lines were drawn by hand using the nearest neighbor method of contouring. Contours were adjusted where outcrop exposures allowed details of the topographic surface to be observed. The accuracy of this map is dependent on the type and density of data points in a given area. Some water well records available at the ISGS were not used because the quality of the data was inadequate. This map may be updated as new data become available in the future.

Reference

Jacobson, R.J., F.B. Denny, and G.W. Griffith, 2007, Bedrock geology of Murphysboro Quadrangle, Jackson County, Illinois: Illinois State Geological Survey, Illinois Preliminary Geologic Map, IPGM Murphysboro-BG, 2 sheets, 1:24,000.

Bedrock Elevation
(feet above mean sea level)

440
420
400
380
360
340
320
300
280
260
240
220

Data Type

394 Boring, including oil and gas. **Boring** labels indicate bedrock elevation in feet above mean sea level.

Note: Well and boring records are on file at the ISGS Geological Records Unit and are available from the ISGS Web site.

Base map compiled by Illinois State Geological Survey from digital data (Raster Feature Separates) provided by the United States Geological Survey. Topography compiled by photogrammetric methods from aerial photographs taken 1965. Field checked 1968. Revisions from aerial photographs taken 1976 and other source data. Map edited 1978.

North American Datum of 1927 (NAD 27)
Projection: Transverse Mercator
10,000-foot ticks: Illinois State Plane Coordinate system, west zone (Transverse Mercator)
1,000-meter ticks: Universal Transverse Mercator grid system, zone 16

Recommended citation:
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SCALE 1:24,000

1 1/2 0 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 .5 0 1 KILOMETER

BASE MAP CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

Released by the authority of the State of Illinois: 2008

Geology based on field work by Russell J. Jacobson, F. Brett Denny, and Gary W. Griffith, 2006–2007.

Digital cartography by Jane E.J. Domier, Shannon M. Geegan and Steve M. Radil, Illinois State Geological Survey.

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ILLINOIS DEPARTMENT OF NATURAL RESOURCES

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ADJOINING QUADRANGLES
1 Ava
2 Vergennes
3 Elkville
4 Oraville
5 De Soto
6 Gorham
7 Pomona
8 Carbondale

1° TRUE NORTH MAGNETIC NORTH
APPROXIMATE MEAN DECLINATION, 2008

ROAD CLASSIFICATION

Primary highway, hard surface
Secondary highway, hard surface
Light-duty road, hard or improved surface
Unimproved road
State Route