Abstract

A collaborative bedrock-seismicity research mapping project between Miami University and the Ohio Department of Natural Resources (ODNR), Division of Geologic Surveys has resulted in the generation of a revised bedrock topographic map for the Oxford and College Corner quadrangles, Butler and Preble counties, southwestern Ohio. The study area consists of glacially eroded terrain by fluvial valleys of the Indian Creek, Four-Mile Creek, and Seven-Mile Creek drainages. Late Wisconsinan-age moraines, eskers, and lacustrine deposits rest on Ordovician-Shale limestone and granitic rock units in the study area with one broad extending to residential, agricultural, industrial, and natural areas; more accurately, the extent of these resources was the primary motivation of the study.

Building on mapping conducted by ODNR in the 1980s, the present study focused on identifying bedrock elevations for a more complete data set. Analysis ofoyo Department of Water Resources and the Ohio Department of Transportation, the City of Oxford, and Miami University. These deposits which range in thickness from 0 to >200 ft serve as the present in the shallow subsurface underlying the highest surface elevations (>1050 ft) in the northern part

Introduction

Our revised bedrock topographic map of the Oxford and College Corner quadrangles in southwestern Ohio was created as a part of the collaborative bedrock-seismicity research project described above. The bedrock topographic map was generated using a combination of local, state, and federal resources. Bedrock map and digital elevation models were created using an array of data layers, each with a unique level of spatial detail. This paper describes the methods used to create the map and the data sources that were utilized.

Geological Setting

The study area is situated at the northwestern corner of the Miami Valley, the western half of Butler County, and the eastern part of Preble County. Numerous low-lying areas are present throughout the study area as a result of glacial erosion. In addition, two sets of geomorphic features, stream valleys and interstream areas, are present. The stream valleys consist of numerous small valleys that are incised into the bedrock. These valleys are typically characterized by a single stream channel that flows from a higher elevation towards a lower elevation. The interstream areas are typically characterized by flat-lying surfaces that are free of stream channels. These areas are typically covered by sedimentary deposits, such as sand and gravel, that are deposited by fluvial processes.

Methods

The revised bedrock topographic map of the Oxford and College Corner quadrangles reflects our primary motivation of identifying bedrock elevations for the study area. The map was generated using a combination of local, state, and federal resources. Bedrock map and digital elevation models were created using an array of data layers, each with a unique level of spatial detail. This paper describes the methods used to create the map and the data sources that were utilized.

Results

The map shows the distribution of bedrock elevations in the study area. The map was generated using a combination of local, state, and federal resources. Bedrock map and digital elevation models were created using an array of data layers, each with a unique level of spatial detail. This paper describes the methods used to create the map and the data sources that were utilized.

Conclusions

The map shows the distribution of bedrock elevations in the study area. The map was generated using a combination of local, state, and federal resources. Bedrock map and digital elevation models were created using an array of data layers, each with a unique level of spatial detail. This paper describes the methods used to create the map and the data sources that were utilized.

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