Surficial Geology of Monona County, Iowa

Introduction to the Surficial Geology of Monona County, Iowa

Monona County lies within the Southern Iowa Plain and Loess Hills (Peters and others, 2006, 2008). Surficial geologic studies of the Monona County area began in the late 19th century, and led to the development of early county and town maps (DePuy and others, 1933; Fitch, 1934). These county maps include most of the state and reveal the characteristic outcrops of the regional geology, including surficial deposits. In 1967, the Surficial Geology of Iowa was published, followed by Surficial Geology of Southeastern Iowa in 1969. These publications provided an overview of the surficial geology of the state and area. Until the 1990s, the surficial geology of the state was mapped at the 1:500,000 scale, but with the development of photogrammetry and digital mapping techniques, these maps were updated at the 1:100,000 scale (Peters and others, 2008). These maps provide a detailed view of the surficial geology of the state and area, including the surficial deposits, glacial andolian deposits, and tills.

In the Monona County area, the surficial geology is predominantly composed of loess and alluvial deposits. The loess deposits are composed of fine-grained silt and clay, and are typically found in the valleys and lowlands of the county. The alluvial deposits are composed of coarse-grained sand and gravel, and are typically found in the river valleys and stream channels of the county.

The surficial geology of Monona County is characterized by the presence of the Des Moines Lobe, which deposited glacial sediments in the area during the Wisconsinan glacial period. The glacial sediments are classified into three main units: the Glacial Till, the Glacial Drift, and the Fluvio-Glacial Drift. The Glacial Till is the oldest unit and is composed of coarse-grained sediments, including boulders, cobbles, and pebbles. The Glacial Drift is composed of finer-grained sediments, including sand and gravel, and is typically found in the river valleys and stream channels. The Fluvio-Glacial Drift is composed of sediments deposited by meltwater streams and glaciers, and is typically found in the river valleys and stream channels.

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