Utility of Soil-Geomorphology and Soil Surveys in Mapping Surficial Geology, Vincennes, IN-IL Quadrangle. (S05-barnhardt095205-Poster)

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Abstract:

On geomorphic features such as floodplains and stream terraces, we found soil surveys, which provide detailed insight regarding subtle changes in sediment texture, useful in delineating surficial geology units. The Vincennes, IN-IL 7.5-minute quadrangle was selected as a pilot study in the ISGS quadrangle mapping program to develop methodologies that integrate within a GIS the digital soils information with field observations of exposures, borehole log descriptions, project-specific drilling, and digital orthophoto quadrangles. The USDA-NRCS provided a custom recompilation and recorrelation of the original 1956 soil survey for our area and we also scanned the archived air photos actually used in that survey. Consequently, we located remnants of stream terraces, colluvial fans, and small sand dunes, and more accurately defined the distribution and deposition of interbedded silt and sand units on hillside and upland positions. Soil parent material groups were modified and their polygons merged to develop the initial surficial geology map. Merging the surface and subsurface sediment data using cross sections and 3-D modeling creates products that are used for aquifer, wetland, and other derivative research.

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