Calculation Grid Cells

GIS-based Three-dimensional Geologic and Hydrogeologic Modeling of the Milan, Ohio 1:24,000 Quadrangle

GIS-BASED THREE-DIMENSIONAL GEOLoGY AND HYDROGEOLOGIC MODELLING OF THE MILAn, OHIO 1:24,000 QUADRANGLE

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The Central Great Lakes Geologic Mapping Coalition (CGLGMC) is a partnership among the state geological surveys of Ohio, Indiana, Illinois, Iowa, and Michigan, and the federal U.S. Geological Survey. The primary objective is to produce detailed three-dimensional geologic maps and hydrogeologic models, along with related digital databases, that can be used by professionals in engineering, environmental hazards, and environmental management. The initial Ohio data project for CGLGMC involved geologic and groundwater modeling of the Milan Quadrangle in north-central Ohio. The map area includes a small portion of the adjacent counties of Allen, Lucas, and Putnam, with the quadrangle consisting of the area that is north of the central Ohio River and south of the Blue Ridge Mountains. This project was funded by the USGS.

It is necessary to have a numerical model capable of handling variably-saturated flow subject to a heterogeneous distribution of hydraulic properties and non-uniform boundary conditions. It is also necessary to have a model that can simulate the direction and rate of flow of water from the surface through the subsurface. This is done in this study through the use of a groundwater flow model. The preliminary results suggest that the central portion of the flow from the unconfined aquifer should be redirected to the recharge area of the Milan Quadrangle.

A computer program was used to calculate the direction and rate of flow of water from the surface through the subsurface. The preliminary results suggest that the central portion of the flow from the unconfined aquifer should be redirected to the recharge area of the Milan Quadrangle.