

3D Geologic Map of Aquifer-Bearing Units of the Delaware Basin, New Mexico

By
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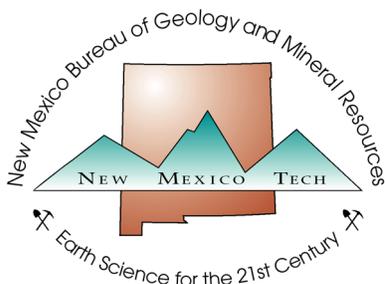
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September 2022

New Mexico Bureau of Geology and Mineral Resources
Open-File Geologic Map OF-GM 303

Scale 1:250,000

This work was supported by the U.S. Geological Survey, National Cooperative Geologic Mapping Program (STATEMAP) under USGS Cooperative Agreement G21AC10770, and the New Mexico Bureau of Geology and Mineral Resources.



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This is a model of the regional shallow subsurface geologic framework of the Delaware Basin region of southeastern New Mexico. The model is intended to be a 'framework' model to be used for illustrative purposes, in large-scale (1:500,000 to 1:1,000,000) studies, or as a 'starting point' for finer resolution studies; it should not be used as a sole source of data for site-specific studies. Any enlargement of this map could cause misunderstanding in the detail of mapping and may result in erroneous interpretations. Site-specific conditions should be verified by detailed surface mapping or subsurface exploration.

This model was constructed by the NMBGMR Aquifer Mapping Program as part of the development of a hydrogeologic framework of the Delaware Basin region. Its construction involved compilation of a variety of input datasets including well data, surface geologic mapping, geologic cross-sections, and structure contours, evaluating the input data using geostatistical methods, then interpolating contact surfaces between control point locations. The model was constructed with a target horizontal resolution of no better than 1 km by 1 km, and a target vertical resolution of no better than 100 ft. The final, total uncertainty in each contact surface as a function of location was estimated by combining the uncertainties from the interpolation methods used and an n-fold cross-validation approach to evaluating dataset uncertainty. Model construction methods can be found in a methods report available from the New Mexico Bureau of Geology and Mineral Resources (<https://geoinfo.nmt.edu/>).

The data scheme of the geodatabase that contains this dataset is a preliminary adaptation for 3D geologic models of the NMBGMR implementation of the USGS GeMS data standard for geologic maps.

The map has not been reviewed according to New Mexico Bureau of Geology and Mineral Resources standards. Revision of the map is likely because of the on-going nature of work in the region. The contents of the report and map should not be considered final and complete until reviewed and published by the New Mexico Bureau of Mines and Mineral Resources. The views and conclusions contained in this document are those of the authors and should not be interpreted as necessarily representing the official policies, either expressed or implied, of the State of New Mexico, or the U.S. Government.