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To: asutkows@indiana.edu
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E-GeoNews

News from the Indiana Geological Survey

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New Industrial Minerals Directory: Online Map and Free Download



The IGS has periodically published a directory to the industrial minerals producers in Indiana since the 1950s. This useful directory lists all the known producers of industrial minerals in the state of Indiana. Commodities include cement, clay and shale, crushed stone, dimension limestone, dimension sandstone, gypsum, lime, peat, construction sand and gravel, industrial sand, and slag.

Now, for the first time, this up-to-date directory is available as an interactive map on the IGS website, [Directory of Industrial Minerals Producers in Indiana](#) ; this Story Map gives industry information and shows locations of the various mines and plants with zoom capabilities. Maps that you custom build can be printed and saved. Data can also be downloaded to a CSV file.

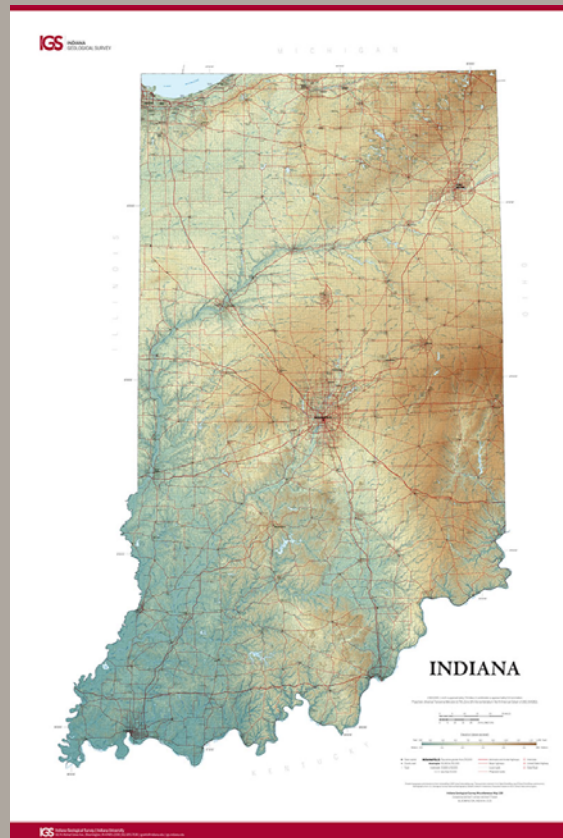
But don't fret if you are a fan of the printed-out paper version. [Directory 11-2016](#) is available as a [free PDF download](#) on the IGS Bookstore.

Great Gift for Map Nerds

Is there a person in your life that can spend hours looking at maps? This [poster-size map of Indiana](#) might be the perfect holiday gift for the map lovers you know.

This shaded-relief map is printed in full color on high-quality poster paper and measures 28 by 42 inches; the cost is \$10 plus shipping. The map was prepared using the newest LiDAR data. It is a 1:500,000-scale map (1 inch on the map equals 7.89 miles) that provides a highly detailed depiction of the diverse landscapes of Indiana.

Included on the map are highways and roads; lakes, rivers and streams; county seats; and population data. Elevations are represented by color, and this, in combination with IGS cartographers' relief-shading techniques, gives the map a three-dimensional look. From across the room, one can easily see the incised landscape of the Wabash Valley or, in the northeastern part of the state, the subtle moraines left by retreating glaciers of the Ice Age. Closer up, the details of the uplands and river bottoms become readily apparent in the southern part of the state.

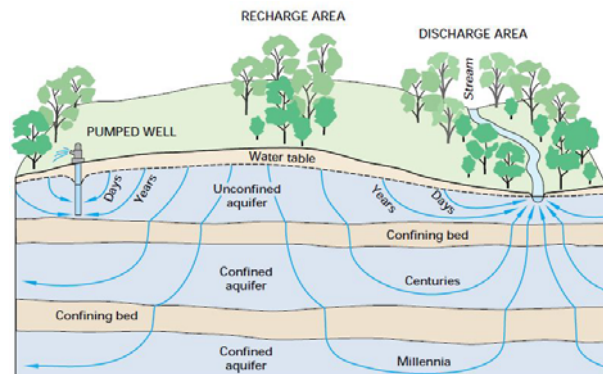


Visit the [IGS Bookstore](#) or call 812-855-7636 to order.

Roundup of Current Research at the IGS

Here are some highlights of recent and ongoing research projects at the IGS. To see a fuller list of projects, check out [this page](#) on the IGS website.

The IGS has contracted with state of Indiana to provide a spatial analysis of significant water withdrawal facilities. Hydrogeologists from IGS's Center for Geospatial Data Analysis will provide the state with a data-quality and accuracy assessment of the locations of about 9,000 significant water withdrawal facilities.



Funding from the USGS has allowed the IGS to begin expanding their coal trace element database. For a number of years, IGS coal geologists have been analyzing Indiana coals and tracking mercury and other trace elements. They will use their data to map mercury distribution in all the major coal beds in Indiana, as well as collecting and analyzing new coal samples to add to the USGS mercury study. The coal research team also received USGS funding to continue collecting, verifying, and encoding data for the National Coal Resources Data System.

IGS glacial geologists and hydrogeologists are studying the effects of tillage practices on near-surface groundwater recharge, a continuation of a previous project. That team has also been

funded to begin an investigation to understand the distribution of arsenic, a known carcinogen, in groundwater.

Funding has been received from the USGS National Groundwater Monitoring Network to expand on the IGS's Center for Geospatial Data Analysis work related to water balance parameters. Data is being collected at several groundwater monitoring stations throughout Indiana as part of the Indiana Water Balance Network.

Global carbon emissions from fossil fuel sources have risen steadily for many decades. As part of the US-China Clean Energy Research Center work on this problem, the IGS has been collaborating with Chinese and American researchers on carbon capture, utilization, and storage technology. Working with geologists from the Illinois State Geological Survey, IGS subsurface geologists are determining if rock systems in the subsurface of the Illinois Basin are strong enough for effective and permanent storage of carbon dioxide. They are evaluating the relationship of stress field and rock mechanics to injection pressures and reservoir performance, and establishing the strength of the seals relative to injection pressures.

Deep saline aquifers also offer a suitable target for carbon dioxide sequestration. With funding from the Battelle Memorial Institute, the IGS is compiling known basic geological attributes of deep oil and gas reservoirs, black shales, coals, and saline aquifers, with the objective of calculating their ability to effectively store large volumes of CO₂.

New IGS Publications

Concern over increased seismicity---a greater number of earthquakes---in the Midcontinent has been in the news lately. Wastewater injection associated with oil production has been correlated with earthquakes. This IGS study looks at the past 10 years of Indiana earthquakes and the practice of wastewater injection within the state.

Rupp, J. A., Dufficy, A. L., and Hamburger, M. W., 2016, [Preliminary investigation of the potential for induced seismicity in Indiana](#): Indiana Geological Survey Report of Progress 48, 26 p.

The IGS has been collecting physical and chemical data and mapping the Colchester Coal Member for many years. Now the most comprehensive digital compilation of geologic data about this coal is available in an [interactive Story Map](#) on the IGS website.



Carl B. Rexroad (1925-2016)



It is with great sadness that we report the death of Carl B. Rexroad, longtime IGS paleontologist and stratigrapher and internationally known researcher in conodont biostratigraphy, on October 27, 2016. (Conodonts are microfossils used to define and identify geologic periods.)

In a career spanning more than 60 years, he published his last paper in 2016 at the age of 91. He began working at the IGS in 1961 and continued until he closed his office and lab in 2015, a span of 54 years. Carl published more than 124 papers and 73 abstracts, researched conodonts in 5 states, and amassed the largest sample set of Silurian conodonts--the Rexroad Conodont Collection---in the United States. His fellow colleagues

honored Carl by naming three conodont taxa after him.

Through his meticulous work and careful documentation, Carl Rexroad has provided an enduring legacy in Midwestern biostratigraphy.

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