

The New Mexico Bureau of Geology and Mineral Resources

A research division of New Mexico Tech



Established by legislation in 1927, the New Mexico Bureau of Geology and Mineral Resources is a non-regulatory state agency that serves as the geological survey for the State of New Mexico. Through our offices, museum, store, laboratories, publications and website, our staff serves the diverse population of New Mexico. From elementary students to research and industry scientists, there is something at the Bureau of Geology for everyone who has interest in the exceptional geology and natural resources of New Mexico. Our multifaceted organization consists of a number of interwoven programs.

Outreach and Education

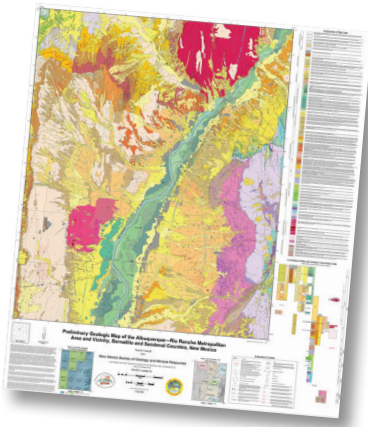
An important part of the mission of the Bureau of Geology is to distribute accurate geoscience information about the natural resources, hazards, and geologic history of New Mexico. We serve a broad audience, from professional geoscientists and university professors to grade-school children and their teachers, as well as influential decision makers and the general public. Our world-class mineral museum supports a large visitor population and runs programs for teachers and students. Our publications and periodicals such as *Earth Matters* and *Lite Geology*, as well as other geological materials, can be purchased at our store or through our web site. We also support and advise graduate student research and teach classes at New Mexico Tech.



Hydrogeology and Aquifer Mapping

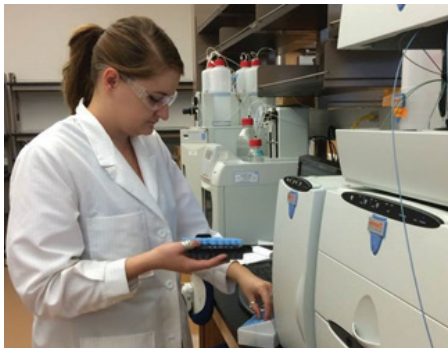
The quantity, quality, and distribution of groundwater in New Mexico is the focus of this research group. Understanding and evaluating water resources requires a good grasp of the complex geology of the state, using tools such as geological mapping, drill-hole dating, geophysical surveys, hydrological and geochemical data, and groundwater modeling. Making data and products available to the public, researchers, and industry, is a core goal of our work. Ongoing projects include focused research in a large number of New Mexico counties and municipalities. Examples below:

- Long-term monitoring of the Animas River alluvial aquifer, following the Gold King Mine spill.
- Development of an extensive rural groundwater monitoring network across New Mexico, in conjunction with other state and federal agencies.
- Studying the useful lifetime of the High Plains aquifer in Curry/Portales basins, which will help guide water planning.
- Producing a statewide groundwater recharge model.



Geological Mapping provides the underpinning of most research carried out by our organization. Our mission is to provide state-of-the-art geological maps of sufficient detail to be of benefit for practical applications for the state of New Mexico. These maps can address a wide range specific topics, such as location of geological resources, including mineral and petroleum resources and groundwater, geological hazards, which are all relevant to natural resource use, city planning, and education. Partial funding for this program is provided by the National Cooperative Geologic Mapping Program. Our goal is to have a variety of types of geologic and resource maps on-line, in an interactive web-based application.

Energy and Mineral resources, like petroleum, coal, uranium and geothermal, all contribute to New Mexico's economy. Our petroleum research group produces primary research that supports the petroleum industry in New Mexico, along with curating and making publicly available an extensive collection of cores, cuttings, and well logging records. Research by our economic minerals group has recently focused on uranium research, producing a detailed resource map for the state, studying hazards associated with abandoned mine lands and the Gold King mine spill, updating coal resources and investigating occurrences of rare-earth-element bearing minerals. We also maintain archives of mine core and mining records. In the arena of geothermal resources, we operate equipment for measuring deep borehole temperatures, that can be used to evaluate geothermal resources around the state.



Laboratories. We are one of the few state geological surveys that has a strong analytical laboratory group. We operate facilities that can produce mineralogical, geochemical, and geochronological analyses on a wide range of materials. Most of our large collection of analytical equipment, whose collective value is in the millions of dollars, was purchased using federal, state, or private external funds. Our laboratories support geological research in New Mexico and beyond, by working with our employees, other researchers at New Mexico Tech, as well as at other universities or private entities. Our laboratories also contribute to the educational mission at New Mexico Tech and other academic institutions through support of student research projects, and classes on analytical methods.

Our **Information Technology** capabilities provide a current, efficient and reliable technology infrastructure that supports our mission. These services integrate with all our research, laboratory, outreach, and administrative roles, requiring a broad and flexible technology portfolio. Some key areas include: **GIS**—Geographical Information Systems geospatial analysis and mapping; **Web**—A robust and interactive web presence with highly-customized internal tools; **Database**—Enterprise databases that maintain critical data for a variety of applications; **Storage**—Large data storage cluster to house administrative, research, and geospatial datasets; **Network**—Fast fiber optic backbone network that allows efficient access to our large datasets.



OUR PROFILE for 2016

- Operating since 1927
- Headquartered on the New Mexico Tech campus
- 59 full and part-time employees
- Employs 32 undergraduate and 14 graduate students
- Budget of \$5 million, consisting of state appropriation and funding from federal and state sources
- Taught 165 credit hours over 500 level
- Advise 25 graduate students
- Operates NM Mineral Museum, a world-class museum.
- Operates a geologically focused bookstore
- Produced 80 peer-reviewed or popular publications
- Geological mapping over 540 square miles
- Completed 10 geological maps, available on-line
- Served 183 users in our laboratories
- Responded to 1,100 service requests
- Hosted 861,080 unique visitors on our website

Visit us at <https://geoinfo.nmt.edu>