

United States-Mexico Transboundary Aquifer Assessment

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University of Arizona, International Boundary and Water Commission, Mexico Geological Survey (SGM), CONAGUA

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BACKGROUND

The desert region of the United States–Mexico border is experiencing rapid economic and population growth where surface water is scarce and unreliable, making groundwater the primary—and in some areas the only—water source. Declining water tables and increasing use of border groundwater resources by municipal and other water users have raised serious concerns about the long-term quality and availability of this supply. Water quantity and quality are limiting factors that control future economic development, population growth and human health along the border. Knowledge of the extent, quality and movement of water in transboundary aquifers is currently inadequate, and managing shared groundwater resources requires cooperation in assessing and understanding these resources.

Through the *United States–Mexico Transboundary Aquifer Assessment* program, scientists from the U.S. Geological Survey, Texas AgriLife Research, Texas Water Resources Institute, New Mexico State University's Water Resources Research Institute, and state agencies and their Mexican counterparts are working together to assess these shared aquifers. The Texas and New Mexico research groups, teaming with Mexican partners, are studying the Mesilla Basin Aquifer, which underlies portions of New Mexico and Texas (near El Paso) in the United States and Chihuahua in Mexico. In unique collaboration they are working together to collect and evaluate new and existing data to develop high quality, comprehensive groundwater quantity and quality databases

and groundwater flow models for binational aquifers. ***This information is needed to understand availability and use of groundwater in these aquifers, and evaluate strategies to protect water quality and enhance water supplies for sustainable economic development on the United States–Mexico border.***

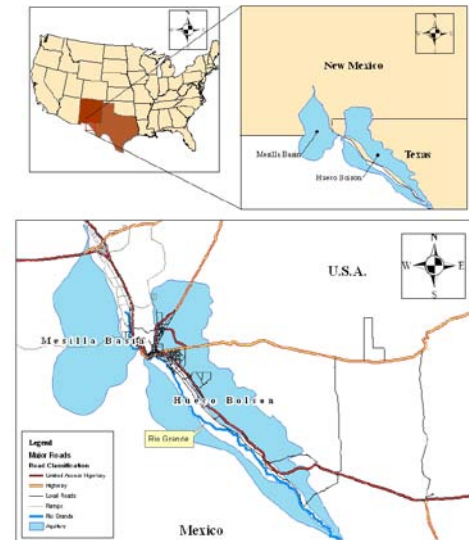
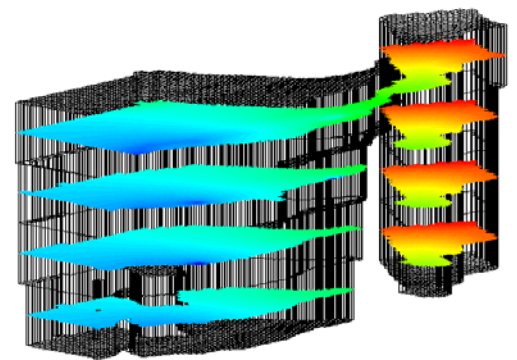


Illustration of Mesilla Basin and Hueco Bolson Aquifers in United States-Mexico boundary

OBJECTIVES AND BENEFITS

- Development of comprehensive, binational groundwater quantity and water quality databases.
- Develop and improve groundwater flow models for binational aquifers to facilitate water resource assessment and planning.
- Assess movement and interaction of water resources.
- Analyze trends in groundwater quality, including salinity, nutrients, toxins, and pathogens.
- Apply the new data and models to evaluate strategies to protect water quality and enhance supplies.
- Compile and develop landuse and landcover characterization mapping information.
- Develop hydrogeologic maps of surficial and bedrock deposits .
- Shared binational aquifer data and studies.



Simulated groundwater levels in different aquifer layers

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