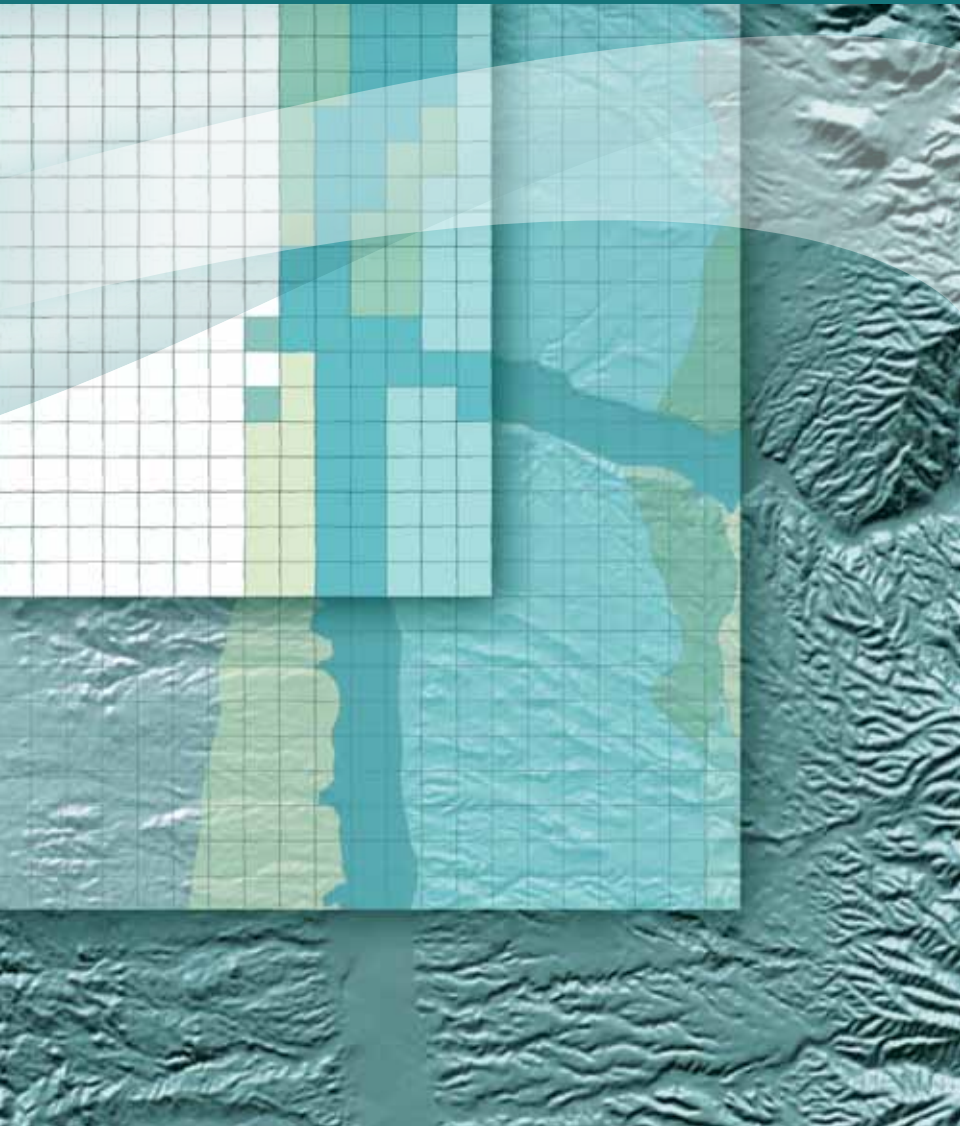




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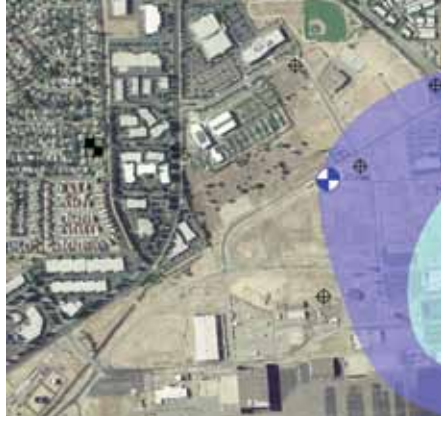
Water Resource Consultants

# Hydrologic Modeling



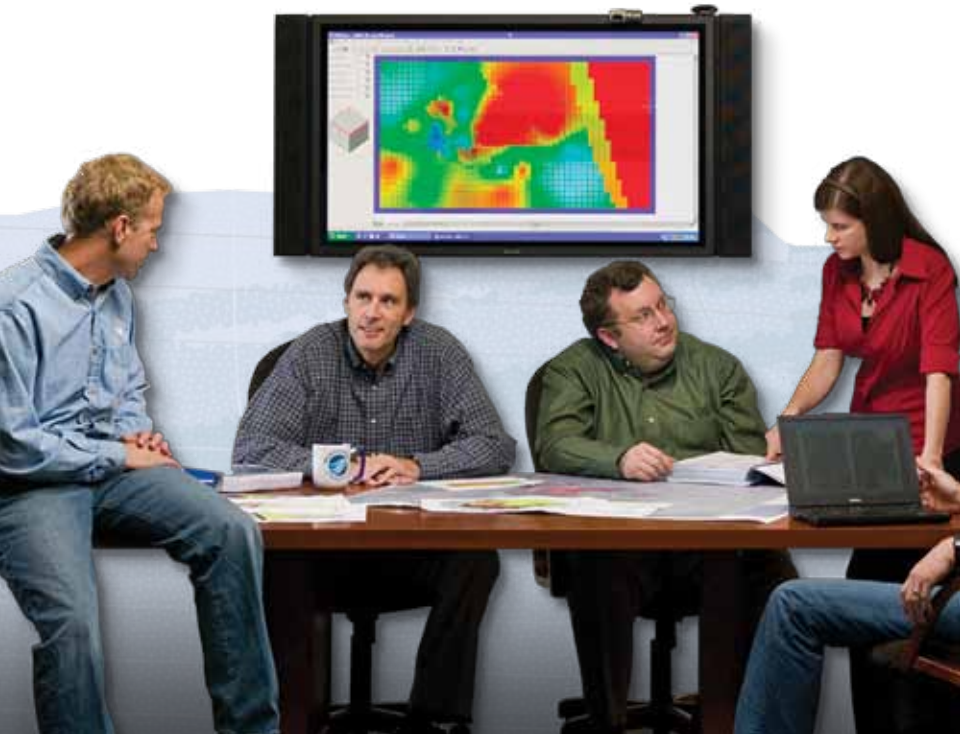
Our Hydrologic Modeling Group employs industry-leading technology to develop predictive hydrologic models for our mining, municipal, and industrial clients.





## Hydrologic Modeling

The Hydrologic Modeling Group at Montgomery & Associates is one of the largest and most experienced teams of modelers in the southwestern United States. A staff of more than 10 modelers allows us to respond to critical project deadlines while delivering the highest quality work products. We employ a broad range of computer





models, from simple analytical solutions to complex finite-element codes. Our approach emphasizes application of the appropriate model, focused on each client's individual decision-making needs.

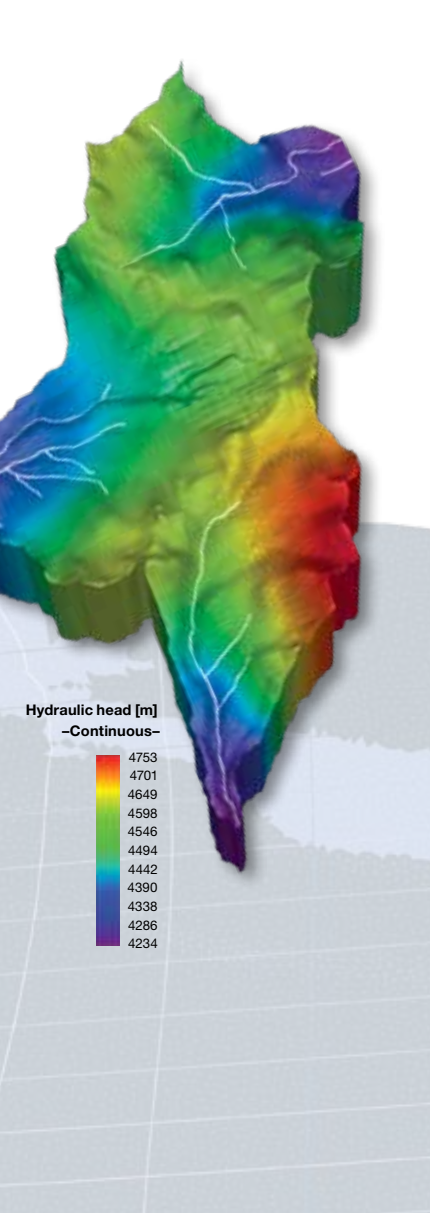
Models are a critical component of most hydrologic analyses. By selecting valid input parameters, developing a representative model structure, calibrating to observed conditions and responses, and conducting a rigorous evaluation of model predictions, we help our clients make sound economic, permitting, and operational decisions.

## ADDITIONAL CAPABILITIES

- ▶ Use of advanced inverse parameter estimation methodologies and stochastic parameterization
- ▶ Integration of results with Decision Support Systems approaches to quantify uncertainty of physical models and costs/benefits of each project
- ▶ Interface with 3D geologic block models and GIS for model construction and data visualization
- ▶ Provide peer-review of models developed by others for permitting, engineering design, and litigation support projects



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## We use hydrologic models to evaluate...

### WATER RESOURCES DEVELOPMENT

- ▶ Impacts of existing or planned groundwater pumping on surface water and groundwater resources
- ▶ Feasibility and design of recharge and recovery operations, and projection of impacts on groundwater level and quality

### MINING HYDROGEOLOGY

- ▶ Mine dewatering and pit-lake development and associated groundwater impacts
- ▶ Mine pore pressure distributions in support of geotechnical design
- ▶ Optimization of heap leach operations to maximize metals recovery

### ENVIRONMENTAL APPLICATIONS

- ▶ Containment of groundwater contamination and design of remedial actions
- ▶ Allocation of environmental liability for litigation support
- ▶ Surface water / groundwater interactions for environmental and water rights purposes
- ▶ Groundwater flow and transport in support of Environmental Impact Statements and other regulatory permits and processes
- ▶ Vadose zone contamination and design of soil vapor extraction and in situ treatment



# MONTGOMERY & ASSOCIATES

Water Resource Consultants

We serve clients around the world from our offices in Arizona and South America. To learn more about our **Hydrologic Modeling** services, contact:

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