

# NUMERICAL MODELING OF THE CERRO PRIETO GEOTHERMAL FIELD, MEXICO

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**Key Words:**

*Mexico, Cerro Prieto, numerical simulation, reservoir modeling*

## ABSTRACT

A completely new, detailed three-dimensional numerical simulation model of the Cerro Prieto geothermal field has been developed to optimize field management and the plant capacity expansion. A conceptual model was developed from all available exploration data, drilling records, well logs, chemical data, and well test data. A three-dimensional simulation model was then constructed and calibrated against the initial state of the system, which confirmed the conceptual model and helped refine boundary conditions. The model was further calibrated by trial-and-error matching of the production history, which involved over 200 wells and a 26-year exploitation history. Observed and calculated production histories were matched satisfactorily. Using the calibrated reservoir model and wellbore simulation, well behavior was forecast under various possible production and injection scenarios and proposed capacity expansion schemes. These forecasts were the basis of optimization of field management and capacity expansion.

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