

# **GROUNDWATER FLOW AND MASS TRANSPORT MODELING : Theory and Applications**

## ***Editor:***

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## ***About the Book:***

The over-exploitation of groundwater resources has resulted in long-term continuous decline of water level in many parts of India and elsewhere for the last many decades. This has resulted in the deterioration of water quality and the widespread drying-up of wells in monsoon climatic regions due to 'failure' of the monsoon. It is thus imperative that effective management of groundwater resources is essential and it requires, firstly, a good understanding of the aquifer system, secondly, that practical measures to control abstraction can be identified and, thirdly augment groundwater resources through artificial recharge. It is therefore essential to quantify the response of the aquifer under study to different input-output stresses. Groundwater modeling study has proved to be a potential tool to study the aquifer response and thereby to evolve appropriate management schemes.

The present book is the improved version of the earlier book on regional groundwater modeling by incorporating both the basic theory (aquifer and its characteristics, mathematical formulation, solution techniques, data requirements, model conceptualization, model construction and calibration procedures and . sensitivity analysis) and model application to assess the groundwater potential and pollution potential. This book is written under the utilization of retired scientist scheme of Department of Science & Technology, Govt of India, New Delhi.

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