
Preface

Preface to the Second Edition

The main objective in producing the second edition of “Applied Hydrogeology of Fractured Rocks” is to incorporate in the book recent advances in this field. In this new edition, topics such as tracer and isotope techniques, groundwater contamination and groundwater modeling have been enlarged into full-length chapters. Besides, additional information has been incorporated in nearly all the chapters particularly for updating latest techniques and information in geophysical exploration, satellite remote sensing sensors, hydrogeology of crystalline and carbonate rocks, well hydraulics, and groundwater conservation and management, with numerous examples. The critical suggestions from colleagues and esteemed reviewers of the first edition have been taken into consideration to the extent possible.

We are thankful to a number of persons for their suggestions, inputs and contributions in this edition, particularly to D.R. Galloway, USGS, Thomas Hahmann, German Aerospace Center, O. Batelaan, University of Brussels, Jiri Krasny, Charles University Prague, M. Thangarajan, National Geophysical Research Institute, A.K. Saha, Delhi University, Sudhir Kumar, National Institute of Hydrology, and G.C. Mishra, Ashwani Raju, D.C. Singhal, R.K. Tewari and A.K. Singh of IIT Roorkee. We appreciate the cooperation extended by the faculty of the Department of Earth Sciences, IIT Roorkee. Mukesh K. Singh assisted in designing the cover page sketch. Thanks are particularly due to Sarvesh Kumar Sharma for softcopy preparation of the manuscript.

Roorkee
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In recent years, particular attention has been focused on the hydrogeology of low permeability rocks as is evidenced by a large number of seminars, symposia and workshops held on the above theme, throughout the world. The hydrogeological aspects of such rocks have attracted greater attention of scientists and engineers, both as a source of water supply, mainly in developing countries, and also for the potential repositories for the safe disposal of high-level radioactive waste, particularly in Europe and North America. Development of geothermal resources is another area of interest.

While teaching graduate and post-graduate students of Earth Sciences and Hydrology at the University of Roorkee, Roorkee, and in several other specialist courses, we realized the need of textbook devoted to fractured rock hydrogeology—to emphasize various aspects of exploration, development, water quality, contamination and assessment, including the application of newer tools remote sensing and geographical information systems etc. to the problem. With this in view, we have endeavoured to all earth scientists and engineers engaged in the field of fractured rock hydrogeology.

Scientific tools and methods of study in fractured rock hydrogeology include a number of aspects, viz. structural mapping, remote sensing, geophysical exploration, geographical information systems, field and laboratory hydraulic testing, including drilling, pumping tests, modeling, and assessment etc. Each of these is a topic in itself, such that separate books are available on individual topics. We have, however, endeavoured to strike a balance so that the reading material is suitable for a graduate/post-graduate level study.

Parts of the manuscript were reviewed by a number of colleagues—A.K. Bhar, S. Balakrishna, D. Kashyap, G.C. Mishra, B. Parkash, A. Prakash, G. Ramaswamy, R.G.S. Sasrty, D.C. Singhal and B.S. Sukhija. We are greatly obliged to them for their help and comments in arriving at the final presentation. We are specially indebted to C.P. Gupta who has contributed Sect. 17.7 of the book. The financial support to one of us (BBSS) received from Council of Scientific and Industrial Research, Government of India, during 1993–1994 and from Association of Geoscientists for International Development (1994–1997) is gratefully acknowledged. We are grateful to the University of Roorkee, for extending the facilities. We also appreciate the assistance provided by Yash Pal and N.K. Varshnay in typing and drafting of the work.

Finally, we are also indebted to our families for enduring four years of our pre-occupation with this book.

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Second Edition

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