

Preface

This book serves as a primary textbook for a first course in groundwater principles, typically offered to students within geoscience, environmental science, geological engineering, and civil engineering departments. This concise volume should also find application as a reference text for professionals.

Groundwater Science begins with an overview of groundwater's role in the hydrologic cycle and in water supply, contamination, and construction issues. Subsequent chapters introduce physical principles: properties of subsurface materials, groundwater flow, groundwater geology, deformation, and flow modeling techniques. Later chapters address groundwater chemistry and contamination. This treatment of the subject is intentionally interdisciplinary, weaving important theories and methods from the disciplines of physics, chemistry, mathematics, geology, biology, and environmental science.

I wrote this book because I wanted to teach concepts and quantitative analyses with a clear, lean, but thorough book. With these goals in mind, I've employed attractive two-color figures and simple language throughout. Care was taken to incorporate up-to-date coverage of and references to the rapid advances in modeling techniques, transport processes, and remediation technologies.

Solving real-world problems is engaging and promotes critical thinking. To this end, examples are sprinkled throughout the text with a selection of problems at the end of each chapter. Answers to selected problems are detailed in an appendix. Faculty adopting this text will be provided with a complete solutions manual upon request.

An associated Website provides data files for additional exercises requiring spreadsheet and/or simple flow modeling software. The site also features links to various groundwater sites offering public-domain and commercial groundwater computer software. The URL for this site is <http://www.academicpress.com/groundwater>

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