

Contaminant Geochemistry

Interactions and Transport in the Subsurface Environment

Bearbeitet von
Brian Berkowitz, Ishai Dror, Bruno Yaron

1. Auflage 2008. Buch. XIV, 412 S. Hardcover
ISBN 978 3 540 74381 1
Format (B x L): 21 x 29,7 cm
Gewicht: 801 g

[Weitere Fachgebiete > Geologie, Geographie, Klima, Umwelt > Umweltpolitik, Umwelttechnik > Umweltüberwachung, Umweltanalytik, Umweltinformatik](#)

schnell und portofrei erhältlich bei

The logo for beck-shop.de features the text 'beck-shop.de' in a bold, red, sans-serif font. Above the 'i' in 'shop' are three red dots of increasing size. Below the main text, 'DIE FACHBUCHHANDLUNG' is written in a smaller, red, all-caps, sans-serif font.

beck-shop.de
DIE FACHBUCHHANDLUNG

Die Online-Fachbuchhandlung beck-shop.de ist spezialisiert auf Fachbücher, insbesondere Recht, Steuern und Wirtschaft. Im Sortiment finden Sie alle Medien (Bücher, Zeitschriften, CDs, eBooks, etc.) aller Verlage. Ergänzt wird das Programm durch Services wie Neuerscheinungsdienst oder Zusammenstellungen von Büchern zu Sonderpreisen. Der Shop führt mehr als 8 Millionen Produkte.

Part IV

Contaminant Transport from Land Surface to Groundwater

In the previous sections of this book, we focused on the nature of contaminants and the geochemical reactions that can occur in the subsurface environment. Chemical compounds introduced into infiltrating water or in contact with soil or rock surfaces are subject to chemically and biologically induced transformations. Other compounds are retained by the soil constituents as sorbed or bound residues. Thus, in terms of geochemical interactions and reactions among dissolved chemical species, interphase transfer occurs in the form of dissolution, precipitation, volatilization, and various forms of physicochemical retention on the solid surfaces.

These phenomena do not occur in a “static” domain: chemical compounds migrate and are redistributed along the soil profile, down to the water table region and within the fully saturated aquifer zone, by flowing water. The extent of this redistribution and the kinetics of the geochemical interactions are controlled by the very nature of fluid flow in porous media, the water chemistry, and of course the properties of the soil and contaminant(s).

To describe and quantify these complex dynamics, models are used. Modeling of contaminant transport involves formulation of a conceptual framework and corresponding quantitative relationships that lead to determination of contaminant distributions over space and time. Models also can be used to investigate the relative influence of different physical and (geo)chemical mechanisms on contaminant transport and to assist in designing management and remediation strategies.

The next chapters consider the dynamics of flow and transport of water and chemical compounds, as they migrate from land surface to the groundwater regime. In Chapter 9, we focus on water flow in the partially saturated zone and through the capillary fringe into the saturated regime below the water table. Chapter 10 then treats (non-chemically reactive) transport mechanisms that govern migration of chemical species, while Chapter 11 integrates the effects of water flow, chemical transport, and geochemical interactions through the subsurface environment. Finally, Chapter 12 considers selected research findings, providing specific examples of the transport behaviors discussed here.