

# Hydrogeochemistry of **Aquatic Ecosystems**

Edited by

Sughosh Madhav • Virendra Bahadur Singh  
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**WILEY**

This edition first published 2023  
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John Wiley & Sons Ltd, The Atrium, Southern Gate, Chichester, West Sussex, PO19 8SQ, UK

*Editorial Office*

Boschstr. 12, 69469 Weinheim, Germany

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*Library of Congress Cataloging-in-Publication Data applied for*  
9781119870531

Cover Design: Wiley

Cover Image: Courtesy of Virendra Bahadur Singh

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# Preface

Hydrogeochemistry has always been a subject to solve the relationships between groundwater, surface water, and aquatic systems' chemical characteristics and their relationship with the area's geology. The phenomenon of hydrogeochemical variations depends on various geochemical processes, like weathering, evaporation, and dissolution, and diverse anthropogenic activities that control the aquatic systems' hydrogeochemistry. Almost all aquatic systems are affected by human interventions, causing several problems. Further climate change also impacts the hydrogeochemistry of different ecosystems. It is, therefore, vital to understand the current status of the aquatic systems to manage and mitigate the impacts. This book covers current issues related to hydrogeochemistry of natural aquatic systems, including river, glaciers, lake, and sub-surface ecosystems, processes involved, and human beings' interference. This book tries to address all the major impending problems related to hydrogeochemistry of surface and sub-surface water with a certain degree of solutions to manage and conserve water resources. The various chapters will help to understand the processes and factors controlling the hydrogeochemistry of water resources. The book discusses multiple hydrogeochemical techniques like nutrient geochemistry, solute acquisition processes, water-sediment interactions, enrichment of geogenic elements like arsenic, fluoride, and uranium, anthropogenic addition, and biogeochemical cycling of metals, CO<sub>2</sub> consumption rate in the surface water bodies, sand mining in rivers, and hydrogeochemical modeling. The other highlights of the book are carbon dynamics and its sequestration in surface water bodies, soil-water