



Interactions between Soil Particles and Microorganisms and the Impact on the Terrestrial Ecosystem

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Introduction

- Fundamental **environmental science** has been recognized as a basic field in science during the last 10 years or so.
- The protection of our environment and sustainability of ecosystem health depend on the progress that will be made in this field.
- Fundamental environmental science is multidisciplinary and a fusion of physical and life sciences.
- Chemistry, however, plays a vital role in environmental science, because it is fundamental to understanding the molecular reactions governing biotic and abiotic environmental processes.

Objectives

- The program aims **to integrate the existing fundamental information** on the interactions of environmental particles and microorganisms and the impact on the terrestrial ecosystem, and to **promote fundamental research** in this very significant and exciting area of science.
- It covers many kinds of interactions between mineral or organic particles and microorganisms, effects of soil colloids on microbial and enzymatic activity, microbial mobilization of nutrients and toxic metals from minerals, interactions in the rhizosphere, global ion cycling, organic pollutant transformation, and processes in the subsurface.
- The program requires the cooperation of many recognized scientists in the field who have been selected by the Commission on Fundamental Environmental Chemistry.

Progress

- Internationally recognized scientists have been selected to complete this task.
- The book arising from this project, on topics that analyze the interplay between environmental chemistry and (micro)biology, is *in press*. It is a collection of critical reviews that characterize the current state of the art and provide guidelines for future research.
- This book is Volume 8 of the **IUPAC Series on Analytical and Physical Chemistry of Environmental Systems**.
- John Wiley & Sons, Chichester, England is the publisher of this book.
- Corresponding IUPAC Project # 610/73/97

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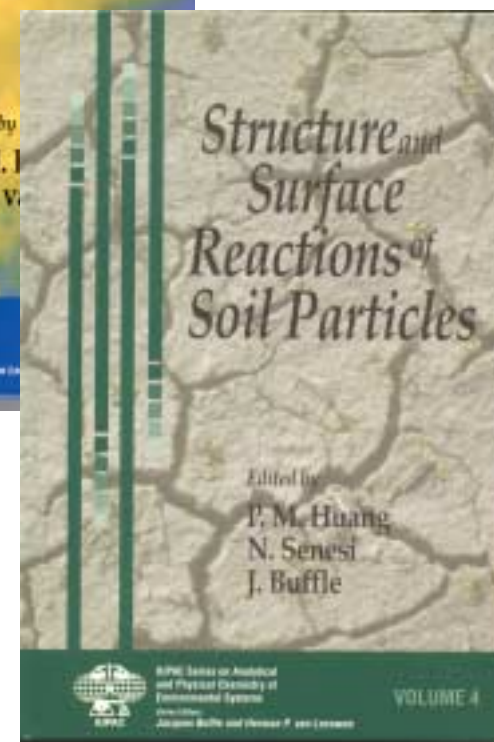
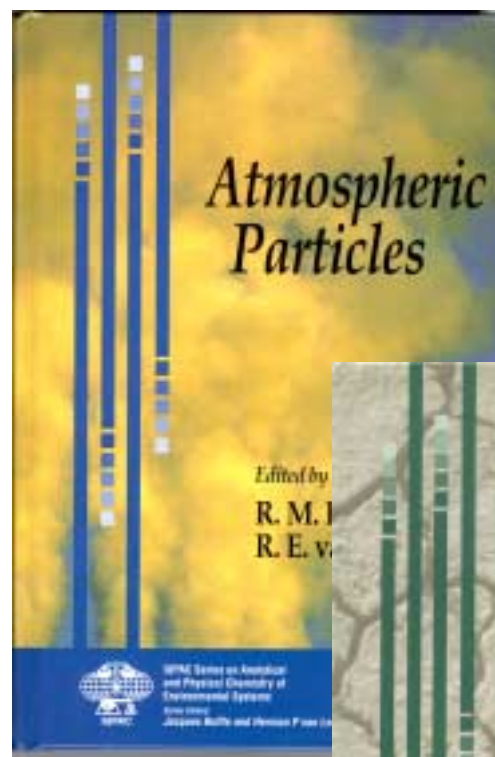
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IUPAC Series on Analytical and Physical Chemistry of Environmental Systems

Main Purposes

- Inform chemists and other scientists about the most important bio-physico-chemical conditions and processes that define the behavior of environmental systems.
- Emphasize the fundamental theoretical concepts of environmental and bio-environmental processes.
- Discuss the analytical tools that exist or should be developed to study those processes.



- **Environmental Particles, Vol.1**
Buffle, J. and van Leeuwen, H.P. (1992)
- **Environmental Particles, Vol. 2**
Buffle, J. and van Leeuwen, H.P. (1993)
- **Metal Speciation and Bioavailability in Aquatic Systems, Vol. 3**
Tessier, A. and Turner, D.R. (1996)
- **Structure and Surface Reactions of Soil Particles, Vol. 4**
Huang, P.M., Senesi, N., and Buffle, J. (1998)
- **Atmospheric Particles, Vol. 5**
Harrison, R.M. and van Grieken, R. (1998)
- ***In Situ* Monitoring of Aquatic Systems - Chemical Analysis and Speciation, Vol. 6**
Buffle, J. and Horvai, G. (2000)
- **Biogeochemistry of Iron in Seawater, Vol. 7**
Turner, D. and Hunter, K. (*in press*)

Each volume is a **collection of critical reviews** that characterize the current state of the art and provide guidelines for future research.

Series Editors: J . Buffle and H.P. van Leeuwen