

## Book review

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### **The importance of chemical 'speciation' in environmental processes**

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S Bernhard (ed.)

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In September 1984, a workshop was held in Berlin to discuss chemical speciation in environmental processes. Selected international experts, falling into the categories of 'users' and 'donors' of information on chemical speciation, were invited to participate in a workshop following the Dahlem model. Each prepared background papers which were circulated prior to the meeting. Participants then separated into four discussion groups covering the areas: biological systems; freshwater and terrestrial systems; chemical species in marine and estuarine environments; and systems under stress. The report comprises the background papers and group reports summarizing the results of discussions held during the meeting. Broadly, the book is an appraisal of the current status of environmental research and advanced analytical techniques for the identification and quantification of chemical species. Almost exclusively, it is the inorganic aspects of the subject which are covered.

The book contains a wide range of material: to give some indication of its contents, the section covering the importance of chemical species in biological

systems includes papers covering the dependence of physiological utilization and toxicity, the interactions of inorganic species with biomembranes, the reactivity of metals in enzymes and the determination of chemical species. Contributions to the groups discussing chemical species in freshwater, marine and terrestrial systems deal with equilibrium modelling and the transport and availability of heavy-metal species in soils and aquatic systems. Processes considered include the exchange of elements between dissolved and particulate phases and the role of inorganic and organic ligands and biological activity in governing speciation and biogeochemical cycling. The section on industrial discharges includes a few papers discussing the nature of waste chemicals and the effects of microbial activity, but the main emphasis is on contributions dealing with analytical methods.

The text not only summarizes our present state of understanding, but usefully brings together disciplines which would otherwise inevitably remain isolated. The book covers a broad spectrum of material but, in general, this is not a problem as it stimulates the cross-fertilization of ideas. There are places, however, where the contributions have obviously deviated from the main theme of the discussion group and where it has been difficult to maintain the desired balance.

As might be expected from such a select gathering, the contributions are generally of an exceptionally high standard. The book is well presented with few typographical errors and is essential reading for anyone either working in the field or wishing to enter it.

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