

Preface

While this book is in its first edition, it nonetheless has a lengthy pedigree, which derives from a book entitled *Understanding Our Environment: An Introduction to Environmental Chemistry and Pollution*, which ran to three editions, the last of which was published in 1999. *Understanding Our Environment* has proved very popular as a student textbook, but changes in the way that the subject is taught had necessitated its splitting into two separate books.

When *Understanding Our Environment* was first published, neither environmental chemistry nor pollution was taught in many universities, and most of those courses which existed were relatively rudimentary. In many cases, no clear distinction was drawn between environmental chemistry and pollution and the two were taught largely hand in hand. Nowadays, the subjects are taught in far more institutions and in a far more sophisticated way. There is consequently a need to reflect these changes in what would have been the fourth edition of *Understanding Our Environment*, and after discussion with contributors to the third edition and with the Royal Society of Chemistry, it was decided to divide the former book into two and create new books under the titles respectively of *An Introduction to Pollution Science* and *Principles of Environmental Chemistry*. Because of the authoritative status of the authors of *Understanding Our Environment* and highly positive feedback which we had received on the book, it was decided to retain the existing chapters where possible while updating the new structure to enhance them through the inclusion of further chapters.

This division of the earlier book into two new titles is designed to accommodate the needs of what are now two rather separate markets. *An Introduction to Pollution Science* is designed for courses within degrees in environmental sciences, environmental studies and related areas including taught postgraduate courses, which are not embedded in a specific physical science or life science discipline such as chemistry,

physics or biology. The level of basic scientific knowledge assumed of the reader is therefore only that of the generalist and the book should be accessible to a very wide readership including those outside of the academic world wishing to acquire a broadly based knowledge of pollution phenomena. The second title, *Principles of Environmental Chemistry* assumes a significant knowledge of chemistry and is aimed far more at courses on environmental chemistry which are embedded within chemistry degree courses. The book will therefore be suitable for students taking second or third year option courses in environmental chemistry or those taking specialised Masters' courses, having studied the chemical sciences at first-degree level.

In this volume I have been fortunate to retain the services of a number of authors from *Understanding Our Environment*. The approach has been to update chapters from that book where possible, although some of the new authors have decided to take a completely different approach. The book initially deals with the atmosphere, freshwaters, the oceans and the solid earth as separate compartments. There are certain common crosscutting features such as non-ideal solution chemistry, and where possible these are dealt with in detail where they first occur, with suitable cross-referencing when they re-appear at later points. Chemicals in the environment do not respect compartmental boundaries, and indeed many important phenomena occur as a result of transfers between compartments. The book therefore contains subsequent chapters on environmental organic chemistry, which emphasises the complex behaviour of persistent organic pollutants, and on biogeochemical cycling of pollutants, including major processes affecting both organic and inorganic chemical species.

I am grateful to the authors for making available their great depth and breadth of experience to the production of this book and for tolerating my many editorial quibbles. I believe that their contributions have created a book of widespread appeal, which will find many eager readers both on taught courses and in professional practice.

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