

Deaton, M.L., Winebrake, J.J.: **Dynamic Modeling of Environmental Systems**. – Springer-Verlag, New York - Berlin - Heidelberg 2000. ISBN 0-387-98880-7. Pp. 194 (hardback with a CD-ROM). DM 112.00, öS 818.00, sFr 102.00, GBP 38.50, USD 59.95.

This book was published in the series of Modeling Dynamic Systems and it offers a valuable opportunity to learn the system thinking and to better understand dynamic systems in nature.

After the series Preface by its editors, M. Ruth and B. Hannon, the authors' Preface follows. Here, they explain some important features of the book, which evolved from their teaching activities. The authors also emphasise their two main objectives: (1) to help understanding some broad concepts of dynamic system modelling, and (2) to apply these concepts to environmental systems. I would like to underline their philosophy, *i.e.*, that models became tools not only for solving problems but also for a better understanding and appreciation for the problems. In the book, the first three chapters are devoted to an overview of dynamic system modelling: "Overview of environmental systems" (Chapter 1), "Basic modeling concepts in environmental systems models" (Chapter 2), and "Strategies for analysing and using environmental systems models" (Chapter 3). The second part of the book describes dynamic models of a variety of environmental problems. The chapter titles illustrate which topics are dealt with. Chapter 4 is devoted to the "Modeling predator-prey systems". "Modeling surface water contamination" determines the content of Chapter 5. Chapter 6 describes "Matter cycling in ecosystems", Chapter 7 "Modeling mobile source air pollution inventories", Chapter 8 "Greenhouse gases and global warming", and the last Chapter 9 "Atmospheric chemistry and pollution transport".

Each chapter consists of a brief description of the problem and background, followed by the appropriate mathematical relationships including equations. Finally, the reader is offered a series of exercises, references cited in the chapter as well as further suggested readings. For the description of the models, the software package STELLA was used. On the accompanying CD-ROM, some pre-developed models are included.

The book terminates with an Epilogue and a short Index. Terminating this review, I would like to quote just from the Epilogue "some final thoughts" of the authors on modeling: "1. The output from a model is only as reliable as its least reliable input... 2. The most important outcome of a modeling effort may be a better understanding of the system, and not necessarily the actual model output... 3. Keep it simple... 4. Dynamic modeling is only one area of modeling... 5. Maintain your modeling skills in systems thinking." Experienced modellers recognise that these thoughts represent the very basis of modelling. Researches with no expertise in modelling can deduce what such a scientific activity offers for their research.

As seen from the content, there are many topics dealt with in the reviewed book that would be of prime importance also for readers of *Photosynthetica*. If you are one of those who think of extending one's understanding of the phenomena studied by introducing some kind of modelling, do try this book. I am sure that this book will reward those who invest their time and energy to its study.

L. NÁTR (*Praha*)