An Electronic Book from

The EnviroComp Institute

Environmental Sciences and Environmental Computing
Vol. III

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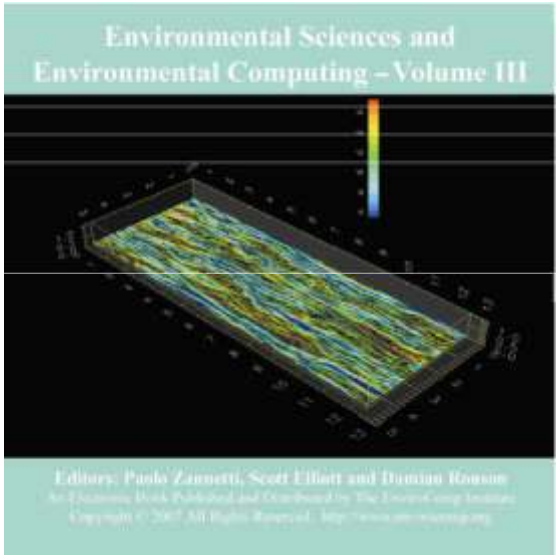

This electronic book presents a peer-reviewed collection of chapters in Environmental Sciences and Environmental Computing (ESEC). This is the third volume of a series of electronic books in this field published by the EnviroComp Institute[1].

The EnviroComp Institute has pioneered the production of electronic books in environmental sciences[2]. This format allows the incorporation of features not available in printed books, such as hypertext, text search capabilities, Internet pointers, high-resolution color pictures, and animations. Another useful feature of this book series is that it has its own Web page[3] where readers and potential readers can visit for information on forthcoming volumes, purchasing options, errata/corrige, and other relevant issues.

This book series aims at presenting review papers and case studies on subjects related to environmental sciences and environmental computing. Most of the chapters deal with environmental pollution in all media (air, water, soil, groundwater, and biota), with

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1 www.envirocomp.org

2 www.envirocomp.org/pubs

3 www.envirocomp.org/esec

particular emphasis on the computational aspects, such as data analysis, simulation modeling, numerical forecasting, optimization, and computer visualization.

In Volume I of the series[4], we presented a set of five technical chapters and three special chapters. The table of contents of Volume I can be examined here. The five technical chapters dealt with the following: air pollution issues in Madrid, Spain, and Mexico City; ecodynamics models for oceanic studies; soil and groundwater pollution in Australia; and global climate change. The three special chapters provided a survey and available information on the Internet for the following environmental topics: technical disciplines, government institutions, professional societies, ecological modeling, atmospheric sciences, and air pollution modeling.

Volume II[5] presented 13 technical chapters on the following topics: computational fluid dynamics (CFD); short-term forecasting of air pollution episodes; water pollution in a river; brine disposal from inland desalination plants; transport models for soil and groundwater contamination; modeling nutrient dynamics in cultivated soils; a numerical model to simulate debris flow; ocean iron enrichment; global marine Chlorophyll; statistical properties of extreme sea waves; large eddy simulation (LES); decision support system (DSS); and artificial intelligence (AI). The table of contents of Volume II can be examined here.

This new volume (Volume III) presents 11 chapters covering:

1. The simulation of atmospheric boundary layer turbulence
2. Air pollution dispersion modeling in complex terrain
3. Analytical solutions of the advection-diffusion equation
4. Simulation of marine systems
5. Global dynamics sulfur cycle simulation
6. The log-Pearson III distribution
7. Basin management
8. Ocean modeling with TRACEGAS_MOD
9. Aqueous sediments
10. Climate change
11. Sea-air gas transfer

This electronic book is distributed on CD-ROM and can be read, examined, searched, and printed with any computer system (PC/Mac/Unix) using the free software (Adobe Acrobat Reader) included as part of the CD-ROM. The book is fully hyper-texted and contains a large number of color pictures and pointers to Internet Web sites.

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[4] http://envirocomp.org/flyers/esec1_flyer.pdf

[5] http://envirocomp.org/esecII/esecII_flyer.pdf

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