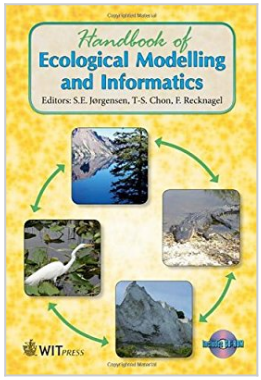

Handbook of Ecological Modelling and Informatics

By S. E. Jorgensen, T-S. Chon, F. A. Recknagel

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Ecological modeling has made enormous progress in the last year, which is probably the result of the rapidly increasing use of ecological models in environmental management and ecological research. This book is an up-to-date overview of the possibilities ecological modeling offers today.

The book also presents briefly the history of ecological modeling and ecological informatics and the themes that these two ecological subfields cover today and discusses the use of mediated or institutionalized modeling in environmental management. It presents 12 model types and network calculation available today for environmental management and ecological research: steady-state models, stochastic models, deterministic models, biogeochemical dynamic models, individual-based models, fuzzy models, population dynamic models, artificial neural network, structurally dynamic models, cellular automata, ecotoxicological models, ecotoxicological behavioral models, spatial models, rule-based models and coupling of ecological models with hydrodynamic models. One chapter of the book presents three recently developed software packages that are particularly appropriate for the development of mediated models. Finally, one chapter covers the very important topic of data mining and its use in ecological modeling.

All the model types are illustrated by examples, either on the enclosed CD or by download from Internet, making it possible for the reader to get a clear idea of what each different model type can offer in applicability and their advantages and disadvantages.

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Editorial Review

Review
"It does provide a wealth of material that I would expect to interest those researchers in particular who find themselves reading "Ecological Modelling" often." --The Quarterly Review of Biology, Volume 85, December 2010

"Handbook of Ecological Modelling and Informatics provides a rare combination of both an approachable introduction to the practice of ecological modeling and a compilation of detailed examples of applying ecological models to actual questions."
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