



sustainability



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Modelling and Simulation of Human-Environment Interactions

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Computational models provide intelligent environmental decision support systems to understand how human decisions are shaped by, and contribute to changes in, the environment. These models provide essential tools to tackle the important issues raised by climate change, including migrations and conflicts due to resource scarcity (e.g., water resources), while accounting for the necessity of co-managing ecosystems across a population of stakeholders with diverse goals. Such socio-environmental systems are characterized by their complexity, which is reflected by an abundance of open questions. This book explores several of these open questions, based on the contributions from over 50 authors.

While several books account for methodological developments in modeling socio-environmental systems, our book is unique in combining case studies, methodological innovations, and a holistic approach to training the next generation of modelers. One chapter covers the ontological, epistemological, and ethical issues raised at the intersection of sustainability research and social simulation. In another chapter, we show that the benefits of simulations are not limited to managing complex eco-systems, as they can also serve an educational mission in teaching essential rules and thus improve systems thinking competencies in the broader population.



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