Modelling is an essential element in science and research. In every scientific discipline modelling and simulation is the third pillar for the development of knowledge, in addition to theory and experiment. This book documents the revised contributions to the 18th Workshop Modelling and Simulation of Ecosystems in 2014 and reflects the variety of approaches and tools of the modellers as well as the wide range of modelling and simulation of ecosystems. The contributions describe various calculation algorithms and modelling techniques, such as cellular automata, neural networks and fuzzy modelling. The authors have partly further developed or modified some modelling approaches. The modelling presented in this book will deal with impacts of climate change on agricultural productivity, spatial database for planning of power grids and development of spatial data infrastructures, air pollution, flow network, urban transport system, relationship between urban form and energy consumption, compactness, efficiency and environmental quality of cities, rainfall-runoff, water intake, status and structure of landscape, urban growth, and dispersion of Western corn rootworm. Two contributions show applications of GIS based multiple criteria evaluation methods. One article discusses the new paradigm of open science. The results presented here have both theoretical-methodological and planning practical significance.

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