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*Editors*

The GeoJournal Library 90

# Modelling Land-Use Change

*Progress and Applications*



Springer

## Modelling Land-Use Change

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Volume 90

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# Modelling Land-Use Change

## Progress and Applications

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**Springer**

A C.I.P. Catalogue record for this book is available from the Library of Congress

ISBN 978-1-4020-6484-5 (PB)  
ISBN 978-1-4020-5648-2 (e-book)

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Published by Springer,  
P.O. Box 17, 3300 AA Dordrecht, The Netherlands.

*[www.springer.com](http://www.springer.com)*

*Printed on acid-free paper*

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# Contents

Contributing authors	ix
Preface	xv
Acknowledgements	xvii
1. Modelling land-use change E. KOOMEN AND J. STILLWELL	1
PART I: Analysis of land-use trends and their driving forces	
2. Land-use change at cadastral parcel level in Albania L.J.M. JANSEN, G. CARRAI AND M. PETRI	25
3. Driving forces of landscape change in the urbanizing Limmat Valley, Switzerland A.M. HERSPERGER AND M. BÜRGI	45
4. Landscape changes in the Israeli Carmel area M. SONIS, M. SHOSHANY AND N. GOLDSHLAGER	61
5. New land-use development processes associated with the acceleration of urbanisation in China Z.-G. WU, S.-H. ZHOU AND C.-C. FENG	83
PART II: Explanatory models of land-use change	
6. Driving forces of land-use change in a cultural landscape of Spain J. PEÑA, A. BONET, J. BELLOT, J.R. SÁNCHEZ, D. EISENHUTH, S. HALLETT AND A. ALEDO	97

7. Empirically derived probability maps to downscale aggregated land-use data	117
N. DENDONCKER, P. BOGAERT, AND M. ROUNSEVELL	
8. A spatial interaction model for agricultural uses	133
J. GONÇALVES AND T. DENTINHO	
PART III: Optimisation modelling	
9. Spatial optimisation in land-use allocation problems	147
W. LOONEN, P. HEUBERGER, M. KUIJPERS-LINDE	
10. Sustainable land-use and water management in mountain ecosystems	167
S.K. MANDAL	
11. <i>GeneticLand</i> : modelling land-use change using evolutionary algorithms	181
J. SEIXAS, J.P. NUNES, P. LOURENÇO AND J. CORTE-REAL	
PART IV: Incorporation of new modelling approaches	
12. Microsimulation of metropolitan employment deconcentration	199
D. FELSENSTEIN, E. ASHBEL AND A. BEN-NUN	
13. Simulation of polycentric urban growth dynamics through agents	219
W. LOIBL, T. TÖTZER, M. KÖSTL AND K. STEINNOCHER	
14. <i>PUMA</i> : multi-agent modelling of urban systems	237
D. ETTEMA, K. DE JONG, H. TIMMERMANS AND A. BAKEMA	
15. Integrating cellular automata and regional dynamics using GIS	259
K. PIYATHAMRONGCHAI AND M. BATTY	
PART V: Operational land-use simulation models	
16. A land-use modelling system for environmental impact assessment	281
J. BORSBOOM-VAN BEURDEN, A. BAKEMA AND H. TIJBOSCH	

17. The <i>MOLAND</i> modelling framework for urban and regional land-use dynamics	297
G. ENGELEN, C. LAVALLE, J.I. BARREDO, M. MEULEN AND R. WHITE	
18. Dynamic simulation of land-use change trajectories with the <i>CLUE-s</i> model	321
P.H. VERBURG AND K.P. OVERMARS	
PART VI: Land-use simulation for policy analysis	
19. Beyond growth? Decline of the urban fabric in Eastern Germany	339
D. HAASE, A. HOLZKÄMPER AND R. SEPPELT	
20. Land-use simulation for water management	355
J. DEKKERS AND E. KOOMEN	
21. GIS-based modelling of land-use systems	375
P. SHERIDAN, J.O. SCHROERS AND E. ROMMELFANGER	
Index	391



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## Preface

The transformation of land use and land cover is driven by a range of different factors and mechanisms. Climate, technology and economics are key determinants of land-use change at different spatial and temporal scales. Whilst the implications of climatic warming at a global level are hugely worrying for low lying parts of the world, the processes of urbanisation continue in a seemingly uninterrupted manner. As time goes by, the use of land in both natural and man-made environments is influenced by the pressures associated with development. The demand for land for new residential housing in northwest European countries has been a huge challenge for governments striving to protect greenfield sites in recent years, whilst brownfield regeneration has been a common response to the decline of staple manufacturing in older industrial heartlands. The variety of forces that drive change in the use of land is extensive and complex, including spatial planning policies designed at local, regional, national and supra-national levels.

Given this complexity and in order to understand the mechanisms of change and the impact of policies, researchers and practitioners have turned their attention to formulating, calibrating and testing models that simulate land-use dynamics. These land-use change models help us to understand the characteristics and interdependencies of the components that constitute spatial systems. Moreover, when utilized in a predictive capacity, they provide valuable insights into possible land-use configurations in the future. Models of land-use change incorporate concepts and knowledge from a wide range of disciplines. Geography, as a spatial science, contributes significantly to the understanding of land-use change whilst demography and economics help explain underlying trends. Model building relies heavily on mathematics and (geographical) information science, but also includes many elements from the softer sciences, such as management studies and environmental science.

This book offers a cross-sectional overview of current research progress in the field of land-use modelling. The contributions that are included in the chapters of the book range from methodology and model calibration to the