

<<土地系统变化动力学与效应模拟>>

图书基本信息

书名：<<土地系统变化动力学与效应模拟>>

13位ISBN编号：9787040314892

10位ISBN编号：7040314894

出版时间：2011-4

出版范围：高等教育

作者：邓祥征 编

页数：299

字数：420000

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内容概要

本书系统介绍了作者自主研发的土地系统变化动力学与效应模拟的三层次结构模型的构架、模块和原理。

重点介绍了构成模型的三大模块——基于CGELUC的区域土地利用结构预测、基于DLS的栅格尺度土地利用格局模拟、基于ESLP的土地系统变化效应评估模块——的功能与应用。

适用于土地利用与土地系统、区域环境变化、生态保育规划等专业的研究者参考，同时也能为土地资源开发利用管理部门与环境保护部门提供借鉴。

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作者简介

邓祥征。

山东省日照市人，中国科学院地理科学与资源研究所研究员。

中国科

学院农业政策研究中心研究员。

IHDP城市化与全球环境变化（UGEC）计划科

学指导委员会委员。

主要从事土地利用变化的经济、环境影响与政策研究，尤

其关注土地系统中人与环境相互作用的机理及其对土地利用格局与过程的影响研究。

发表论文100余篇，出版专著3部。

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版权页：插图：An important part of land system research involves changing land use types based on the theory of land prices, promoting the appropriate use of land use economics and reinforcing land management and protection, allowing the regulatory function of the market to dominate (Annie et al., 2000) . The social asset attributes of land determine that it has special use values. The use value of land is represented by the function of the land system and the land value reflects the properties of the land as commodities (de Koning et al., 1999) . Land price is the currency of land value, which depends on land characteristics such as area, location, fertility and improvability (Krause, 2002) . Land price is also influenced, either directly or indirectly, by investments, supply and demand, location (accessibility) , policies and other social, economic and cultural factors (McIntyre and Lavorel, 2007) . The land price can be improved, and land use efficiency can be maximized by optimizing the land use, continually improving the soil fertility, improving the land quality, constructing transportation networks, changing the infrastructure associated with land, increasing labor inputs, and realizing intensive land management. Additionally, land planning has also been shown to be an important factor affecting land price. Overall, land system research has introduced aspects of "systems thinking" in regards to the characteristics of the land system such as concepts of wholeness, complexity, ordering, relatedness and dynamics. It has proposed basic principles including: the need for overall, comprehensive, connection and development viewpoints; developing and updating the methodologies of the land system research based on previous research; turning the "factor analysis method" into the "systems analysis method"; emphasizing the relationship between cognitive and practical processes of land development as well as the combination of qualitative analysis and quantitative study; and improving the rationality, objectivity, rigor, predictability and practicality of land system research by integrating the achievements of various subjects, such as mathematical methods (including probability theory, operational research, mathematical statistics and fuzzy mathematics) , computer technology, the quantification and automation of RS technology, and GIS.

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《土地系统变化动力学与效应模拟(英文版)》由高等教育出版社出版的。

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