

研究快讯

近43年重庆主城区土地利用时空变化特征与预测*

刘金萍,李为科,郭跃

(重庆师范大学地理科学学院 GIS应用研究重庆市重点实验室,重庆400047)

关键词:GIS;RS;土地利用动态度;人为影响指数;Markov模型;预测;重庆主城区

中图分类号:F119.9;TP79

文献标识码:A

文章编号:1672-6693(2008)02-0091-02

以重庆主城区为研究对象,1961年和1981年的土地利用现状图,1993年、2000年和2004年的TM遥感影像数据,运用GIS和RS技术、土地利用动态度和人为影响指数等数学模型分析了土地利用时空动态变化过程。研究表明:43年来,作为重庆市最重要的经济增长极,城市化进程加速的趋势已完成了以农业用地景观向城镇建设用地的转变。城镇建设用地面积显著增加,水田和旱地面积呈减少趋势,建设用地的增加与耕地的减少成明显的镜像关系。从空间分异的规律来看,重庆市主城八区中,渝中区的核心增长极在43年间一直保持较稳定,人类活动的影响强度指数一直呈现高水平的稳定态势。而九龙坡区、巴南区、大渡口区、江北区、南岸区、沙坪坝区是人类活动影响增加最明显的区域,特别是直辖以来,区域人为影响指数已分别跃升到2004年的65.75%、53.58%、52.42%、58.27%、63.74%和

56.01%。这充分显示出人类活动对城市城乡过渡区内组团景观特征的强烈干扰。运用Markov模型对该研究区未来30年的土地空间格局变迁进行了定量分析,结果显示:到2030年,城镇建设用地面积将占到整个研究区的77.28%。从具体时段分析来看,2000~2010年,受社会经济快速发展,人口膨胀的惯性影响,城镇建设用地从2000年的24.27%跃升到2010年的52.47%,呈现一种急剧扩张的线性状态。在随后的2010~2020、2020~2030年两个时段内,城镇建设用地扩展面积相对缓慢。20年间的平均年增长率为0.66%,这在一定程度上说明了主城区的人口承载力已经达到极限,有向外围组团分散的趋势,以及人们生态意识的觉醒,人口向郊区转移的趋势。土地资源利用将会步入可持续发展轨道。

Research into the Characteristics of Spatio-temporal Dynamics of Land Use Change and Forecast of the Major Urban Areas of Chongqing in the Recent 43 Years

LIU Jin-ping, LI Wei-ke, GUO Yue

(Key Laboratory of GIS Application and Research of Chongqing, College of Geography Science, Chongqing Normal University, Chongqing 400047, China)

Abstract Changing is one special zone in west of China with a large area of three gorges reservoir zone. It has been developing rapidly since 1997, when it became a municipality directly under the central government. With the process of urbanization, the land use has a huge change in this city area. In this study the main eight districts of changing were selected to investigate the spatial and temporal characteristics of the land use change in the recent 43 years is carried out by using RS and GIS, land-use change dynamic degree and human impact index model. The land use data is obtained from Landsat TM images in 1993, 2000 and 2004, and the land use maps in

* 收稿日期:2007-09-17

资助项目:重庆市自然科学基金(No. 9009)

作者简介:刘金萍(1973-),女,副教授,博士,研究方向为资源环境、土壤生态、环境教育等。

1961 and 1981. The results show that the urbanization process , as the most important economic growth pole in the main districts of Chongqing , plays an important factor in intensifying agricultural land transforming into urban construction land. Significant increase of urbanized land and decrease of paddy field and farmland are the image reflection. For the spatial variation , the land use type in central district of Chongqing has remained relatively stable in the recent 43 years , and the strength index of human impact has been on a high level of stable situation. While the effect of human activities increases obviously in Jiulongpo district , south district , Dadukou district , north bank district , south bank district and Shapingba district , and the regional strength index of human impact has risen to 65.75% , 53.58% , 52.42% , 58.27% , 63.74% and 56.01% in 2004 , which indicates the strong interference of human activities in the landscape of the urban and rural transition areas. The spatial and temporal patterns of land use in the next 30 years are forecasted by using Markov model. The results show that the area of urbanized land will account for 77.28% of the entire studied zone in 2030. And for the periodical features , the construction land will be up to 52.47% in 2010 from 24.27% in 2000 , due to the rapid economic development and growing population , showing a linear dramatic expansion. The increase of urbanized land area will be relatively slow in 2010 ~ 2020 and 2020 ~ 2030 and the average annual increase rate in the 2 decades is 0.66% . It shows to some extent that the population in the major urban areas of Chongqing will reach the limit of capacity , and will transfer to external area (urban and rural transition area , rural area).

Key words :GIS ; RS ; land-use change dynamic degree ; human impact index model ; Markov model ; forecast ; major urban areas of Chongqing

(责任编辑 黄 颖)