Journal of World Architecture

Research Article

Application of "3S" Technology in Land Resource Management

Jianshi Xiao

Enshi Natural Resources and Planning Bureau, Enshi 445000, Hubei Province, China

Abstract: Land is the foundation of human existence, and it is also an important prerequisite and foundation for social construction and economic development. However, with the continuing construction and development of society and economy, a large number of trees have been felled, and the level of land desertification has been increasing. Therefore, it is very necessary to pay attention to strengthening land resource management. The application of "3S" technology in land resource management not only solves some problems in land resources, but also promotes the development of China's economy. The author conducted research and analysis on "3S" technology, and put forward an effective strategy for the application of "3S" technology in land resource management, hoping to help the smooth progress of land resource management activities.

Keywords: "3S"technology; Land resources; Application strategy

Publication date: September, 2020

Publication online: 30 September, 2020

Corresponding author: Jianshi Xiao, 214531665@qq.com

Land resources are a very important resource material in China. Effective management of land resources has a very important role in promoting social construction and economic development in China. If we want to use land resources more rationally, we need to focus on strengthening the management of land resources. The application of "3S" technology in land resource management can make the use of land resources more scientific and reasonable, so as to give full play to the important use value of land resources.

1 "3S"Technology

"3S" technology is a generic term for a variety of science and technology, including technology of information acquisition, storage, update, analysis and application. In recent years, with the continuing development of "3S" technology, its application in China's land resource management has become more and more extensive, ahchieving real-time communication and transmission of information[1].

1.1 RS Technology

RS technology is a remote sensing technology that requires the use of detection instruments. The application of RS technology can realize remote detection, hence no longer required to be close to the target as in the past to complete the detection[2]. It is through the collection and analysis of electromagnetic waves to depict the basic characteristics of the target object, and can easily understand the real-time changes of the object.

The development of RS technology is very rapid. It can be used to detect the thermal condition of the target object, and it can operate continuously for 24 hours a day. It can also penetrate forests, ice and snow, etc., and it is highly efficient. The application of RS technology in land resource management is helpful to the smooth development of land resource survey work[3].

The resolution of RS technology is high, it can clearly distinguish the difference between the smaller spectra on the ground, and can identify many target objects. This is undoubtedly a very helpful technology for land resource management, as it can obtain detailed land information more accurately[4].

1.2 GPS Technology

GPS technology should be a technology familiar to the public. Its full name is Global Positioning System. This technology has a long history of application. Even in the rapid development of science and technology, it still occupies a very important position. GPS technology can

not only operate 24 hours a day without interruption, but also has achieved full coverage, and it can lock down target accurately and quickly with its high accuracy, and observe and probe the target object[5]. It is a good helper for land resource management. With this technology, not only can the land resource management work be carried out more efficiently, but also the accuracy of the work can be greatly improved. The development prospect of GPS technology is very good, it will be used in more fields, so as to better serve mankind and society, and give full play to its important advantages.

1.3 GIS Technology

GIS technology refers to geographic information system, which is mainly composed of computer software and hardware. It can not only collect management information, but also analyze and process the information to complete the establishment of the model for display[6]. The application of this technology in land resource management can well solve the problems of complex terrain and large land resources in China. Only by using GIS technology, we can understand the current status of land resources in China in a timely manner, and these data can be stored timely in order to provide an important basis for the subsequent development of land resource management.

1.4 "3S"Technology

"3S" technology, as its name suggests, is a technology that integrates RS technology, GPS technology and GIS technology. It combines the important advantages of these three advanced technologies to form a technology with more powerful performance. The application of "3S" technology in land resource management can avoid the limitation of using any single technology in it, which is helpful to the comprehensive development of land resource management work, and can well solve the relatively complicated land topography in my China. It does not only provide "eyes" observation, but also "brain" analysis and thinking, achieving a comprehensive and in-depth survey of land resources, therefore allowing the acquisition of more timely and accurate information[7].

2 Effective Strategies for the Application of "3S"Technology in Land Resource Management

2.1 Application of "3S" technology in land survey

Land is an important resource for our survival, and it is also a non-renewable resource. This shows that it is very necessary to strengthen land resource management and use land rationally. Before rational use of land resources, it is necessary to investigate land resources in order to fully understand the actual situation of land resources in China. The application of "3S" technology in land surveys will help the investigation work to be carried out smoothly and efficiently. See Table 1 for details.

Table 1. Application of "3S" Technology in Land Resource Survey

"3S"Technology	Job Scope	Critical Advantages
RS Technology	Use aerospace and aviation technology to collect influence data and spatial information on land resources, and transmit the collected information to GIS.	1. Collection of information is more accurate and comprehensive. 2. Able to collect spatial information of land resources.
GIS Technology	Use its own powerful management and analytical capabilities and databases to conduct in-depth analysis and sorting of the received information to obtain statistical data.	1. Faster analysis and sorting of digital information. 2. Greatly ease the work pressure of related staff.
GPS Technology	Used in tandem with RS technology to accurately locate land resources, so as to complete information collection more quickly.	1. A good assistant for RS Technology. 2. Can locate the position of land resources quickly and accurately.

2.2 Application of "3S" Technology in Land Resource Planning

Reasonable planning and utilization of land resources are necessary requirements and important basis for promoting urban construction and development. Land resource planning is an indispensable and important link in land resource management[8]. Compared with previous land resource planning work, "3S" technology has more advantages. Its application in land resource planning is shown in Table 2.

Table 2. Application of "3S" Technology in Land Resource Planning

"3S" Technology	Detailed Content
RS Technology	Sensitive and timely capture of areas where land resources have changed.
GPS Technology	Obtain information about the nature and quantity of changes in target land resources.
GIS Technology	Effectively monitor the changes in land resources through the management of all the information obtained.

2.3 Application of "3S" Technology in Land Resource Monitoring

In the process of carrying out land resource management, sufficient attention must be paid to the monitoring of land resources, and the important application value of "3S" technology in this work must be fully utilized. The specific application is shown in Table 3.

Table 3. Application of "3S" technology in land resource monitoring

"3S"Technology	Detailed Content
RS Technology	The information of land resources is comprehensively analyzed through RS technology, and information that is more beneficial to the rational use of land resources is screened out.
GPS Technology	Conduct in-depth, detailed and comprehensive analysis of the land resources in a specific area, and record the analysis results.
GIS Technology	Summarize and organize the acquired information to get the current status of land resource utilization and basic ground characteristics.

3 Conclusion

In conclusion, "3S" technology integrates RS technology, GPS technology and GIS technology. Compared with traditional land resource management operation and methods, the application of "3S" technology has greater advantages, which can not only greatly improve the efficiency of land resource management but also improve the accuracy and help promote more reasonable use of land resources.

References

[1] Zhi JL. Application of Spatial Information Technology in Land Resource Management [J]. Technology Innovation and Application,2020(29):187-188.

[2] Yu QS. Research on Land Resource Management and Comprehensive Planning of Land Utilization [J].Agriculture and Technology,2020,40(17):51-52.

[3] Tao QX. Existing problems and solutions in land resource management under the new situation [J]. The Farmers Consultant,2020(18):28-29.

[4] Xiao PL. Strengthening land planning and management, improving land resource utilization [J].Huabei Natural Resources,2020(4):131-132.

[5] Gui XW. Analysis of Application of 3S Surveying and Mapping Technology in Land Resources Management [J]. Construction Materials and Decoration, 2019, No.596(35):228-229.

[6] Yang L. On the application status and existing problems of 3S technology in land resource management [J]. Nei Jiang Ke Ji, 2019(6).

[7] Qi Y. Analysis of Application of 3S Surveying and Mapping Technology in Land Resource Management [J]. China Venture Capital, 2019(36):36.

[8] Yu TZ. Analysis of "3S" Technology and Its Application in Land Resource Management Geographic Information System [J]. Construction Materials and Decoration, 2018(24):209-210.