The Superposition Relationship between Cultural Phenomena and Geographical Environment Based on Gis Spatial Analysis

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Abstract: with the Continuous Improvement of the Comprehensive Management Level of Cultural Phenomena, the National Pattern is a Geographical Phenomenon with Historical Attributes. Ethnic Studies Are Characterized by Returning to the Perspective of Local Historical Studies and Ethnic Relations Closely Related to Geographical Environment. They Often Become the Intersection of History and Geography, and Should Be an Important Research Field of Historical Geography. This Paper Studies the Ethnic Pattern of Tibetan Yi Corridor and Han Corridor by Using Gis Technology, Which Can Not Only Describe the Relationship between Them and Geographical Space, But Also Reflect the Process of Ethnic Migration. the Introduction of Gis Technology into the Cultural Phenomenon Resource Information Management Can Not Only Provide the Cultural Phenomenon Resource Management Department with an Intuitive Visual Means of Information Acquisition, So That the Relevant Business Departments Can Easily and Quickly Understand the Cultural Phenomenon Resource Information within the Scope of Cultural Phenomenon. We Can Also Put the Management Concept and Implementation of Cultural Phenomenon Resources on the Superposition of Geographical Environment Information to Effectively Improve the Management Level and Efficiency of Cultural Phenomenon Areas.

1. Introduction

It is a New Angle to Study and Understand the Technology of Geographical Environment Simulation to Use Gis and Remote Sensing Technology to Dynamically Analyze the Adaptive Geographical Environment of Life Bodies, Analyze the Spatial Distribution Characteristics and Forecast the Trend of Future Diffusion in Gis [1-3]. This Can Not Only Strengthen the Early Monitoring and Early Warning of Biological Invasion or Epidemiology, But Also Find out the Most Suitable Key Areas for the Survival Environment to Spread through the Past Spatial Distribution Point Data, Which Lays the Foundation for the Formulation of Appropriate Prevention Strategies and Measures [4]. At the Same Time, Gis is Used to Set Up the Environmental Geographic Layer Set in the Study Area, and the Powerful Spatial Analysis Function of Gis Can Be Used to Explore the Internal Relationship between a Life Body and Its Surrounding Environmental Factors. for Example, Based on the Geographic Information System (Gis), Aiming At the Infectious Diseases of Natural Foci, Taking Beijing as the Research Area, the Spatial Analysis of the Capture Rate of Rattus Norvegicus Was Carried out [5-6]. At Last, the Research Found That the Distribution Range of Rattus Norvegicus Was Closely Related to the Humid Habitat. as a New Technology and Method, Gis and Other Disciplines Are Used to Simulate the Potential Distribution of Life in Different Scenarios, Which Can Improve the Visual Monitoring System of Specific Life Diffusion.

2. The Application of Gis in the Management of Cultural Heritage Sites in China

Geographic Information System (Gis) is a Support System That Provides Decision-Making Basis for Managers. It Has Various Characteristics of Information System. the Main Difference with Other Information Systems is That the Information Stored and Processed is Geocoded, and the Geographic Location and the Attribute Information Related to the Location Become an Important

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Part of Information Retrieval. in Geographic Information System, the Real World is Expressed as a Series of Geographical Elements and Phenomena. These Geographical Features Are At Least Composed of Spatial Location Reference Information and Non Location Information.

Fig.1 Application Diagram of Gis

At the end of last century, GIS was first used in the archaeological investigation of Yinghe area in Henan Province, and then it was widely used in archaeology, cultural relics protection, cultural heritage planning and other fields, as shown in Figure 1. For the information of cultural heritage resources with obvious spatial characteristics, GIS can effectively browse, analyze, apply and manage. Its main functions are as follows Figure 2:

(1) Provide visual and rational tools

There are a lot of information and data with spatial attributes in the resources of cultural heritage sites. For example, remote sensing data of sites, spatial information of archaeological excavation, location information of cultural relics, environmental monitoring points, safety monitoring equipment, distribution information of pipe network, it can be said that most resources of cultural heritage sites have certain spatial attributes [7]. The comprehensive analysis ability of GIS for spatial data and attribute data has greatly improved the spatial analysis of spatial data and attribute data, and provided an intuitive and rational visualization tool.

(2) Provide powerful storage and sharing functions

Due to the huge amount of information and data, the relationship between cultural heritage sites is complex. Modern commercial GIS products, such as ArcGIS, MapInfo, etc., take mature large-scale database management system as technical support, develop the function of using large-scale database to store and manage spatial geographic information, which can store and manage massive data, obtain ideal data query processing ability, especially ensure the consistency and integrity of data, and realize high sharing. The management of cultural heritage resources involves the management of all information related to cultural heritage ontology, surrounding environment and related industries, which must utilize the massive data processing ability of modern GIS [8].

(3) Support multiple forms of spatial data

Modern remote sensing analysis and other technologies, together with the traditional means of artificial investigation, on-site mapping, recording and photographing, make the objects of cultural heritage resource management have various forms of expression methods from drawings to images, tables and words. The support of GIS for various forms of spatial data makes the spatial information directly serve for the management of cultural heritage resources, and makes the management work fully and multi-level.

(4) Good data maintenance and update ability

GIS provides the technology of spatial data maintenance, and the increase, deletion and modification of data are more efficient. At the same time, through the network distributed

management, the updated data can be quickly transferred to the relevant application departments. This kind of fast and good data maintenance and update ability of GIS improves the work efficiency and emergency response ability of cultural heritage resource management [9].

(5)Powerful data spatial analysis ability

Spatial analysis is a general designation of technologies related to spatial data analysis, and it is the core function of GIS system. According to the different properties of the data, it can be divided into the analysis and operation based on spatial graph data, the analysis and operation based on non spatial attribute data, and the joint operation of spatial and non spatial data. The foundation of spatial analysis is geospatial database. The ultimate purpose is to solve the practical problems of geospatial, extract and transfer geospatial information, especially implicit information, to assist decision-making.

(6) It provides a good auxiliary decision-making function

GIS can play a good assistant role in decision-making of cultural heritage resource management, which is reflected in simulation, prediction, evaluation of planning scheme, formulation of safety emergency plan, etc. To some extent, the application of GIS can supplement the deficiency of quantitative analysis of previous planning in system control and decision-making stage. At the same time, due to the rapidity of data updating and the real-time of spatial analysis, it provides a good technical support for the dynamic adjustment of cultural heritage resource management. This dynamic management mode is of great significance to guide the management of cultural heritage resources.

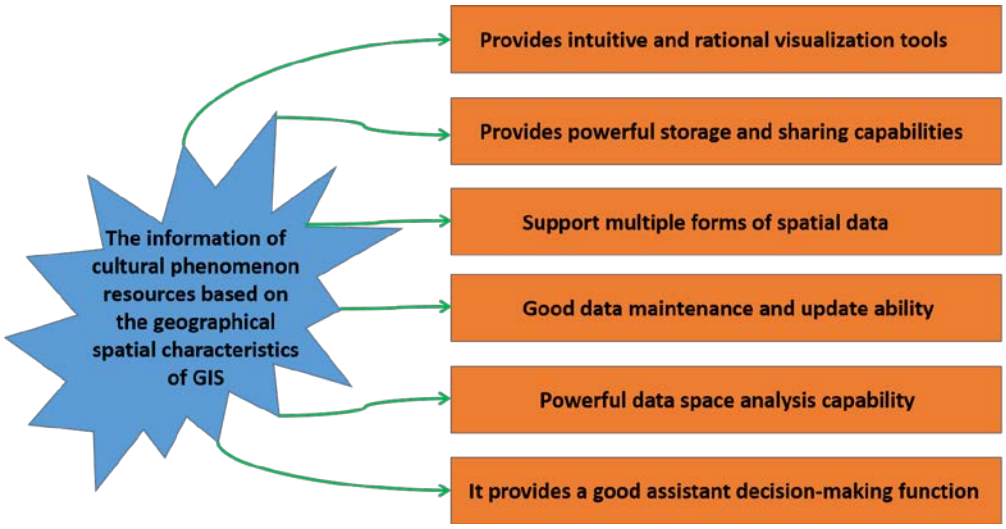

Fig.2 Cultural Phenomenon Resource Information of Geographical Spatial Characteristics

3. Gis Analysis of Spatial Pattern of Two Corridors

The superposition of the Tibetan Yi Corridor and the Han corridor has finally created a multi-ethnic pattern with the Han as the main body in Yunnan. Can the relationship between this pattern and the geographical environment be further confirmed? The following attempts are made with the technical methods of GIS [10].

GIS is the English abbreviation of geographic information technology. It refers to a comprehensive discipline that collects, stores, manages, analyzes and displays geographic data with the support of computer software and hardware. GIS has powerful spatial analysis function, which can explain the relationship between geographical features scientifically and efficiently. The national pattern has a clear spatial attribute, which is suitable for carrying out corresponding spatial analysis with GIS technology.

3.1 Basic Assumptions

The ethnic pattern of the Tibetan Yi Corridor has experienced changes, and it began to be distributed today. Among them, ethnic minorities have experienced differentiation and integration,

and until the identification of ethnic groups in the 1950s, the relationship between their origins has changed a lot. To carry out a quantitative analysis, it should be based on the following basic assumptions.

(1)The distribution and boundary of ethnic groups are relatively stable - considering the great influence of geographical environment on the mode of production, as well as the significant differences in living habits caused by it, the Han nationality and ethnic minorities who have crossed the boundary of the Tibetan Yi Corridor are relatively limited, and the distribution and boundary of ethnic groups are relatively stable.

(2)Ethnic identification and composition are relatively stable -- ethnic composition comes from the work of ethnic identification carried out since the 1950s in China. Although it does not directly reflect ethnic integration and changes, the definition of ethnic minorities and Han nationality is relatively credible. The policies enjoyed by ethnic minorities in terms of fertility, education, etc., at least strengthen their identity in ethnic composition, and the result is that the boundary of ethnic composition is strengthened.

(3)Ethnic distribution is related to ethnic migration - although there is no specific destination for ethnic migration, the goal should be to find a livable environment that matches the existing production mode, and the static distribution state is also the reflection of the dynamic migration characteristics at a specific point in time.

3.2 Analysis Ideas and Data Sources

Based on the above hypothesis, as long as we get the population of each county and the population of the Han nationality, we can calculate the proportion of the population of the Han nationality and the minority nationality in the population of each county (Table 1). If we connect the people with the same ratio on the map, the contour obtained can describe the state of ethnic distribution, and further infer the migration process.

The spatial data of this study is 1:4 million map of each county in the national basic geographic information database. The population data in Table 1 are from the statistics of ethnic composition of Yunnan, Sichuan, Tibet and other provinces in the fifth national census. It should be noted that “five universal” data is more suitable for this study due to the problem of statistical caliber, so the latest “six universal” data is not used.

Table 1 Population Proportion Of Han Nationality and Ethnic Minorities in Each County

District Name	population	Han population	Proportion of Han nationality	Proportion of ethnic minorities
Deqin County	69667	982	0.015	0.095
Zhongdian County	141729	24667	0.182	0.818
Yanjin County	367919	353892	0.96	0.04
Gong Shan County	35189	1458	0.04	0.96
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3.3 Technical Method

The area of the Tibetan Yi Corridor is vast, involving 351 counties, and only 351 values are obtained by sampling in proportion to the ethnic population of each county. Such a rough sample number will be difficult to obtain isolines covering three provinces and regions by conventional methods.

Arc GIS is the most widely used software in GIS industry. It has powerful spatial analysis ability and many analysis tools. The geostatistics analysis module in Arc GIS is based on geostatistics, through a regional variable, with the help of suitable mathematical functions, to study the natural phenomena with spatial correlation and dependence. The basic analysis idea is as follows: when the isoline needs to be drawn but the number of samples is not enough, the missing points can be calculated by selecting appropriate functions, and the isoline drawn can scientifically achieve the spatial distribution characteristics. There are many interpolation methods to choose from. Considering the significant heterogeneity and spatial dependence of population distribution, the radial basis function (RBF) interpolation method without any hypothesis is selected in this study,

and its simulation results can meet the needs of this study.

3.4 Research Findings

The Tibetan Yi Corridor connects Qinghai and Tibet in the north, reaches Sichuan and Yunnan in the south, and crosses the border in the West. Only the eastern edge is the boundary between the Han nationality and the minority nationality. To the east of the boundary is the Han nationality inhabited area, and to the west is the corridor area dominated by the minority nationality. There is a clear correspondence between the spatial form of isoline and geographical elements, that is, the north section of Minjiang River in the east of ABA area, the Longmen Mountains in the northwest of Chengdu to the north of Ya'an, and the middle section of Dadu River in the southeast of Ganzi area. The West southwest boundary of Chengdu Plain defined by the three constitutes the north section of the eastern limit of the Tibetan Yi Corridor; it flows into Minjiang River along the lower section of Dadu River, turns to the lower section of Jinsha River along the southwest after reaching Yibin, and reaches the north of Kunming, forming the south section of the eastern limit of the Tibetan Yi Corridor.

In the Nujiang River, Lancang River, upper Jinsha River and Yalong river basins from the west to the middle of Yunnan Sichuan Tibet border, the river valley is mainly the migration channel, while in the upper Minjiang River, middle and lower Dadu River and lower Jinsha River in the East, in addition to migration, it is also the natural boundary between ethnic minorities and Han nationality. It can be seen that there is a significant correlation between the Tibetan Yi Corridor and the geographical environment.

In terms of time, the Han nationality entered Yunnan on a large scale later than the ethnic minorities before. After the yuan and Ming Dynasties, the Han nationality “squeezed” into the space of the aborigines from the East and northeast of Yunnan, and quickly replaced the aborigines near the site and became the main ethnic group. Along with the administrative center moving eastward to Kunming and other major events, the Han corridor gradually formed, which significantly increased the impact on the historical process of Yunnan Province, and finally promoted the formation of the pluralistic and integrated pattern of the Chinese nation with other ethnic groups.

Unlike the Tibetan Yi Corridor, which has a clear geographical feature of narrow and long river valleys, the Han corridor has a more obscure geographical feature. Dabazi in Yunnan is mainly distributed in the central line of Yunnan, i.e. along Qujing Kunming Chuxiong Baoshan, it crosses the East and West, just in accordance with the spatial distribution of the Han corridor. On the plateau of Yunnan Guizhou Plateau, there are such dabazi as Luliang, Qujing, Kunming, Zhaotong, etc. this area forms the “hot spot” area of Han nationality distribution, which is the main portal for Han nationality immigrants to Yunnan. Another “hot spot” is located in the dam with Baoshan as the center, which roughly forms the distribution pattern of “East-West wings, east big and West small”. The other two areas where Bazi is concentrated are near Dali in the northwest of Yunnan and Wenshan in the southeast of Yunnan. The former is close to the west of Sichuan and the southeast of Tibet, and the latter is close to Guangxi, and the Baiyue system. It can be regarded as the result of the resistance of the cultural resilience of the original ethnic group after the Han corridor is “squeezed in”.

4. Conclusion

Historical geography takes the geographical phenomena in the process of history as the research object, the study of national pattern implies the historical vision of taking the place as the center, and has both geographical and historical attributes, which is an important research content of the discipline. As a province with extremely complex ethnic composition, the history of Yunnan has been running through the process of migration, differentiation and integration of all ethnic groups. Yunnan, with its special geographical environment and relative location, has become an unique specimen after the superposition of the Tibetan Yi Corridor and the Han corridor in the meeting of historical and geographical causes. Using the spatial analysis of GIS to study the ethnic pattern of the Tibetan Yi Corridor and the Han corridor, we can directly reveal the relationship between the

two and the geographical environment. In consideration of the dynamic distribution, it can also reflect the process of ethnic geographical distribution and migration to a certain extent.

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