

# The Application of GIS in Studying the Route of Qing People Entering Xinjiang

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## ABSTRACT

GIS is a specific and very important spatial information system. This way avoids the problems of large human resource investment and complicated work in traditional data processing. So this technology helps to improve the research speed and deepen the research content. The research on the route of the Qing people entering Xinjiang based on GIS technology is to obtain and summarize useful information in the Works of the Qing people through GIS technology, make various thematic charts such as the route table of the Qing people entering Xinjiang and the map of scenic spots and historic sites in Xinjiang, and carry out specific analysis and research. For example, GIS technology is used to analyze the creation of specific writers entering Xinjiang in different years and the distribution of their works in different regions, and the birth, transmutation and regional distribution of writers entering Xinjiang are analyzed by GIS technology.

**Keywords:** *GIS Technology, The Route of Qing People Entering Xinjiang, Topic List, Topic Study*

## 1. INTRODUCTION

Geographic Information System (GIS), namely Geographic Information System or Geo-Information System, is a specific and very important spatial Information System. It is a technical system to collect, store, manage, calculate, analyze, display and describe the geographical distribution data in the whole or part of the earth surface (including atmosphere) space with the support of computer hardware and software system.[1] GIS technology-related products include ArcGIS, ArcMap, MapGIS, SuperMap, Google Earth, etc.

Scholars have been trying to interpret literary works from various perspectives, restore the true face of literature and promote the development of the discipline. With the continuous development of GIS and other technologies, the spatial and temporal coordinates of ancient writers can be positioned through GIS spatial data acquisition, storage, display, editing, processing, analysis, output and application. Thus, the activities and creation of a group of writers in different periods and places are analyzed statistically. For example, Jiang Ying and other scholars combined GIS technology with the literature of western Regions in Xinjiang and proposed to build a map digital analysis platform. However, few scholars proposed to construct the route table of Qing people entering Xinjiang by GIS technology.

Through GIS, this paper attempts to retrieve useful information from induction and qing works, making precise route into Xinjiang table and places of interest in Xinjiang and other special charts, and carrying out

detailed analysis and research. For example through GIS analysis into the creation of writers in different years of the specific situation in xinjiang and their works in the distribution of different regions, this paper analyzes the birth, transmutation and regional distribution of writers in Xinjiang through GIS technology. The deficiency of this paper is that, due to the large number of qing people's works, only a preliminary construction of the Qing people into Xinjiang route table.

## 2. THE ROUTE OF THE QING PEOPLE INTO XINJIANG

In view of the actual situation in Xinjiang, the Qing government implemented Jun Fu Zhi and established the General of Yi Li. Many officials and garrison troops were successively sent to Xinjiang, and many literators spontaneously traveled to Xinjiang. At the same time, in order to better promote the large number of inland population westward, to reclaim a large area of land in Xinjiang, to recover the social economy, and to consolidate the border area, the Qing government planned to send inland criminals to Xinjiang. Many mainland officials were also sent to Xinjiang after being convicted, and were exiled to various parts of the region, depending on the severity of their crimes. The prisoners, many of whom were famous men, kept records of what they saw and heard on their travels, Such as Wo Ren's Shache Jixing, Zou Daijun's Xizheng Jicheng, Chen Wanl's Xixing Diary, Tao Baolian's Xinmao Shixingji, Jinglian's Bingling Jicheng, Yizhen's Elute Xingcheng Diary, Feng Suoguang's Xixing Diary, Wang Tingxiang's Yechai Jicheng, Song Bolu's Xiyuan Suoji, Lli Deyi's Beizheng Diary and Ruguan Diary,

Fang Ximeng's Xizheng Xulu, and Yu Peisen's Youli Meng Xinjiang Diary[2].

From their travels and diaries, we can see that most people at that time entered Xinjiang by the following means: first, along the Hexi Corridor and through Xingxing Gorge [3]; Second, it entered Xinjiang through Wuli-Yasutai [4].

### 3. RESEARCH ON THE ROUTE OF QING PEOPLE ENTERING XINJIANG BASED ON GIS TECHNOLOGY

GIS has the advantage of its powerful data storage, data processing, data analysis function, and can carry on the accurate positioning of time and space data and analysis. The research method based on GIS technology, the ability to these large amounts of information in the notes, diary, rapid extraction processing, can generate as much as possible and credible processing results. At the same time, these processing results are analyzed twice or more times, and scholars draw appropriate conclusions according to the processing and analysis results. For example, ARCGIS software is used to

**Table 1.** The Routes to Xinjiang

Order	Beginning Spot	Through 1	Through 2	Ending Spot
1	Gansu	Hexi Corridor	Xingxing Xia	Xin Jiang
2	Beijing\WNei Menggu	Wu Li Yasutai		

The above two routes can also be refined analysis. Integrated Fang Ximeng's Xizhegn Xulu,[5] and Yuan Dahua's Gan-Xin Youzong Huibian [6], etc., it can be seen that through gansu province, it is one of the route out of jiaiyuguan, by Xingxing Xia into xinjiang, the tianshan mountains to the southwest direction, through the QItai, yanqi, Weili, kuche, finally to A kesu. Stay time in each area, they formed a copy record, etc., to re-create the trip that year.

Through this method, ARCGIS software can be used to induce the route table of qing people entering Xinjiang, so as to study the commonness and individuality of the routes chosen by Qing people entering Xinjiang.

2) Constructing the chart of places of interest in Xinjiang by GIS technology

By using GIS technology to locate the mountains and rivers traveled by literati entering Xinjiang, the GEOGRAPHIC information system can automatically generate some location coordinates of Xinjiang with historical geographic characteristics, record the literary activities around these coordinates according to the important coordinates, and form a "map of scenic spots and historic sites".[7] The construction and application prospect of the digital analysis platform of western

import information and form a hotspot map of qing people's inbound information, which can be analyzed.

#### 3.1 Make Thematic Table Based on GIS Technology

Modern information technology represented by GIS requires the first entry of some basic data, such as historical data, geographical data, etc., which are very rich in literature. It is possible to input and sort out the names and names in the above notes and diaries, and make various thematic tables, such as the following three:

1) The route table of Qing people entering Xinjiang constructed by GIS technology

By inputting the dates and works of writers of different provinces into the database, the GEOGRAPHIC information system can automatically generate a list of writers' whereabouts in Xinjiang, which is very helpful to understand the activities and routes of writers in Xinjiang. You can simply construct the following two routes to Xinjiang.(See Table 1)

regions literary map based on GIS technology can help to understand the literary activities of various places of interest in Xinjiang and carry out cultural tourism.

Taking some scenic spots and historic sites in Hami city as examples, the following table is constructed. (See Table 2)

For example, the tomb of King Hui in Hami and the Ancient Tomb group of Wubao in the above table, according to the life data of famous figures, the GIS can automatically generate the plan of the map of their birthplace, death place and cemetery, which is helpful to the development of tourism in Xinjiang.

The name of xingxingxia, as recorded in the table, is legendary. Now there are three kinds of saying. First, it is recorded in the Historical Records that "the star fell to the ground, then the stone is also." It means that the stars fell from the sky into the desert and became a bridge connecting the western regions. Second, because of the overlapping peaks of Xingxing Gorge, among which the mountain road is winding and winding, Xie Bin's Xinjiang Travel Notes that "the xia is strewn with stones, hence the name of the stars". [9] The third theory is that this place is named "Gorilla Gorge" because it is mountainous, difficult to travel, and looks like a wild animal [10].

**Table 2.** Used Names of Hami

Area	Number	Ancient Name	Special features[8]
Hami	1	Xingxing Xia	the passes of the Ancient Silk Road; Place names legend
	2	Yar Dang scenic tourist area	National AAA level scenic spot
	3	Hami returned to the king's tomb	History; building
	4	The Five Fortress tombs	Landscape; history
	5	Laoyamiao port	Trade routes

In addition, with the input of the geological data of gold, zinc and copper deposits in Xingxingxia area, the gis can automatically generate the structure map of three groups of ore-controlling strata and four volcanic belts, which is of great geological significance.

### 3.2 Carry Out Analysis and Research According to Thematic Map

According to the above qing people into Xinjiang route table and The chart of places of interest in Xinjiang to carry out specific analysis and research.

1) Through statistical analysis into xinjiang specific writers in different time and place of creation

ARCGIS software is used to draw distribution maps. Through sorting and improving their life data, geographic information system can automatically generate their tracks and routes in Xinjiang, which is very helpful to understand the activities and contributions of specific writers in different time periods.

For example, Jing Lian of the Qing Dynasty was appointed counselor and minister of Ili in the ninth year of Xianfeng (1859). On the second day of September in the eleventh year of Xianfeng (1861), Jing Lian was ordered to go to Aksu for business. He started from Huiyuan city of Ili, and passed 14 military fortresses on the way, covering a distance of more than 1,000 li. Because of the time shortage, he chose to go through the ice ridge, later wrote "Ice Ridge Chronicle", used to record the tour, he wrote 34 poems on the way, and named "Du Ling Yin". The poem describes what he saw and felt on the way, showing jing lian's concern for politics and his love for the people of all ethnic groups in the border areas. In the first year of Tongzhi (1862), Jing Lian was appointed counselor and minister of Yarkand. In the tenth year of Tongzhi (1871), he was granted the capital of Urumqi and stationed in Balikun and other places. In the thirteenth year of Tongzhi (1874), he appointed the imperial envoy to supervise the military affairs in Xinjiang. In the first year of Guangxu (1875), he returned to Beijing. During his tenure, he wrote many essays, which are important materials for studying the society of Xinjiang at this time. Thus, the

main works of his life were written on the way to Xinjiang, or while serving as an official in Xinjiang.

2) Analyzing the birth, transmutation and regional distribution of writers in Xinjiang through GIS technology

Geographic information system system can be arranged by place names, automatically generate a certain period of literary activities in a certain place, to form a new group of writers.

For example, through THE ANALYSIS of GIS technology, it can be found that there is a group of writers, most of whom are jinshi, deeply educated in traditional Han culture, familiar with Confucian classics, often reciting poems and writing fu, and were exiled to Xinjiang, thus creating a cultural circle of special cultural people. For example, Lin Zexu, Shi Buhua, Zuo Zongtang, Jing Lian, Chu Tingzhang, Xiao Xiong, Song Boru and so on. In their works, they described their exile experience, expressed the beauty of the frontier of the motherland, and expressed the magnanimous and open-minded attitude towards life. In the History of Chinese Usage in the Western Regions, Ma Ke Zhang called them the "banished group". [11] Such as Lin zexu, he had to defend the merits of country and national dignity, but convicted and then stand on, during his exile in xinjiang, still, to the best of yourself for the settlement of xinjiang has made a contribution, development, production, water conservancy, still for the people, his works deeply expressed his magnanimous open-minded attitude towards life.

## 4. CONCLUSIONS

The research on the route of the Qing people entering Xinjiang based on GIS technology is to obtain and summarize the useful information in the works of the Qing people through GIS technology, make various thematic charts such as the route table of the Qing people entering Xinjiang and the map of scenic spots and historic sites in Xinjiang, and carry out specific analysis and research. For example, GIS technology is used to analyze the creation of specific writers entering Xinjiang in different years and the distribution of their works in different regions, and the birth, transmutation and regional distribution of writers entering Xinjiang are analyzed by GIS technology. This method avoids the

problem of fragmented and unsystematic data processing. Finally, a summary is formed on a graph, which has the advantages of visualization, more intuitive and easier to understand the changes in time and space scales, which is helpful to improve the research speed and deepen the research content.

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