

# **Preliminary Assumption for GIS Database of Chinese Historical Geography**

**Dr. Jianxiong Ge\* & Dr. Zhimin Man**  
**Center For Historical Geographic Studies**  
**Fudan University,**  
**China, PRC**

## **I. Significance and necessity**

In the researches of Chinese historical geography, a huge amount of spatial data is needed, such as administrative regional establishments, economical elements, population, physiognomy, climate etc., which can hardly be illustrated clearly just by letter without any map. Without a relative communion spatial database, researchers had to do much manual work and some of them had always been repeated again and again. For example, in compiling a historical map in a specific field, one should not only have researches on its own sphere, but also need relative spatial data. In a map about natural disaster, besides the elements of disaster itself, a base map of administrative regional establishments in the corresponding period must be available as well. This is the same necessity for compiling a map of population distribution. By the further developing of researches of historical geography, the transferring and sharing of spatial data are becoming more and more important. It is an urgent task for us to establish a corresponding GIS database capable of publishing research results, sharing data, avoiding waste and perfecting our work.

It is more important for the Chinese historical geographers and those interested in Chinese historical geography. Compared with other countries and regimes, dynasties in ancient China usually covered a much longer history and vaster territory, and remained a huge accumulation of historical records and data. Changes of administrative establishments and the relative place name had been utterly continuous and complicated. A same administrative establishment might have different localities for its seat and different area under its control, while a same place name might appear in different localities and years. The place name of Beijing may be an example. As far as we know, there had been more than ten places named Beijing in the past 2000 years. The location might be as north as Mongolia Plateau and as south as the Changjiang River Delta. The area this name represented might be as small as a common town or larger than a present big province.

---

● Director, professor, Center for Historical Geographic Studies, Fudan University, Shanghai, China

One of the main functions of the Chinese historical geographic research is to serve social development and provide necessary products. Among various kind of publications, map-making is almost the best way for illustrating and simplifying the theory and conclusion. *The Historical Atlas of China*<sup>1</sup> chiefly edited by Professor Tan Qixiang, which illustrates complicated changes of administrative regional establishments and boundaries in Chinese history with vivid and clear maps, is a prefect combination of academic contribution and applicable result. This is why it is so warmly welcomed by all circles of readers since its publication.

Meanwhile, the compilation of maps for academic results promotes and deepens the historical geographic research. Some difficult issues and inadequacy, which may be avoided and neglected in papers and books, had to be illustrated clearly and strictly without vacancy. By putting data in this spatial framework, you may also find some conclusions that could hardly be found by general means. For example, in the research of the climatic conditions of the serious drought in North China in the year of 1877 (the third year of Guang Xi Reign, Qing Dynasty), map data may be used to explain the spatial difference of the drought in North China in order to make clear of the reasons for differences in the distribution of losses caused by the disaster. This is because in any case of historical geographic research, one can hardly find and collect complete data or all of the materials, some of them had already disappeared in the past. No matter how detailed and complete, there must be spatial and time gap or vacancy in any project. But when we put all the data on a map, some of the gap or vacancy may be eliminated according to the data in the surrounding area or by the time continuation.

As the technology available, the best way for map compilation is digitalization. GIS system and technology had already realized effective depositing, editing and modification separately for different kind of map data and is also suitable for the management and inquiring of database. The application of GIS technology will surely promote the progress of researches in historical geography.

## **II. Research focus**

### **a. Basic data for historical maps**

As a prerequisite step for the compilation of a historical maps, basic data of the main geographic elements are needed, such as boundaries between regimes, demarcations

among different administrative regions, seats of administrative establishments of various levels, contour lines, demitint terrain maps, rivers, coastal lines, mountains etc. In order to illustrate the process of evolution, temporal changes should be detailed and characterized for all above elements. But owing to the inadequate of historical records and the limitation of up-to-date researches, we can hardly put this requirement to reality at present. Only data for some specific years or periods may be made by using data in the existing historical atlas and then make them thicker and thicker by putting new datum in the intervals. The process of thick may be traced back period by period, say from the latter half of 20th century to the earlier half, and then to the Qing Period.

For example, county-level boundaries are of great significance in re-establishing historical geographic data. But you can never find a systematic record about the original boundaries and their changes, nor a historical map illustrating those boundaries. The only way we had to go is that on the basis of contemporary map, we trace back and compile a map of a previous year, say ten years earlier, to illustrate the changes in this period. Then, one step by one step and finally cover the past six centuries of Ming, Qing, the Republic China and the People's Republic of China. Correct compilation depends on detailed and complete collection of historical records, which can only be used and for inquiry from a special database.

#### **b. Data for specialized maps**

On the basis of the existing results, such as the fields covered by *National Historical Atlas of P. R. China* which is going to publish its first volume next year, specific atlas should be compiled on population distribution, social economy, ethnic groups and national minorities, cities and towns, culture, religions, military affairs and wars, physiognomy and hydrology, natural disasters and climatic changes etc.. Other fields may be gradually covered.

#### **c. Experiment and improving of technologies in making historical geographic data**

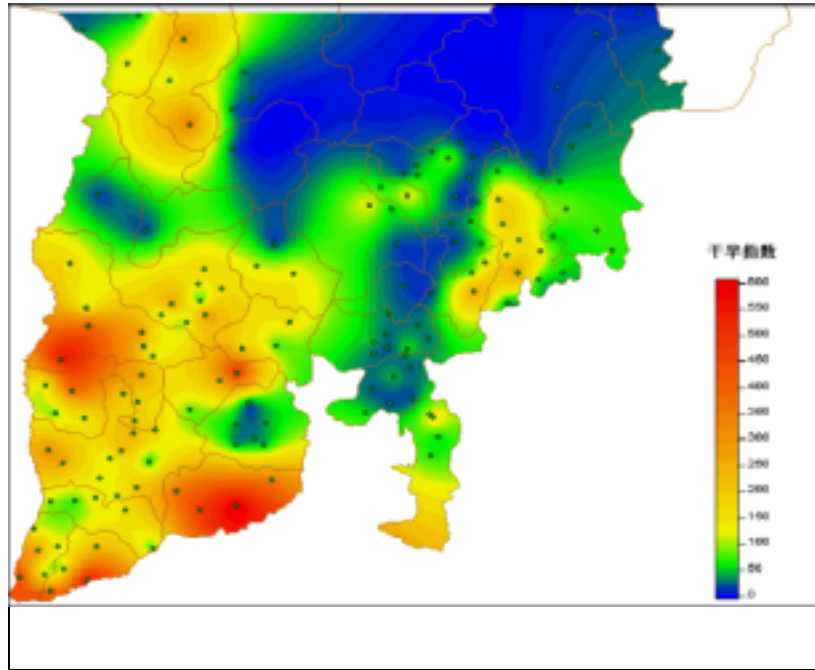
As a new field for database, some fundamental technological means should be examined and experienced, such as the scheme for coding, the setting up of a database, the way for picking up datum and for inquiring, the readjustment and perfecting for the existing data coordinates, in order to set examples for the coming database making and datum putting in, and avoid doing poorly done work caused by unmatched datum over again. At the same time, we must closely follow up the development of GIS platform technology and obtain effective support from it.

---

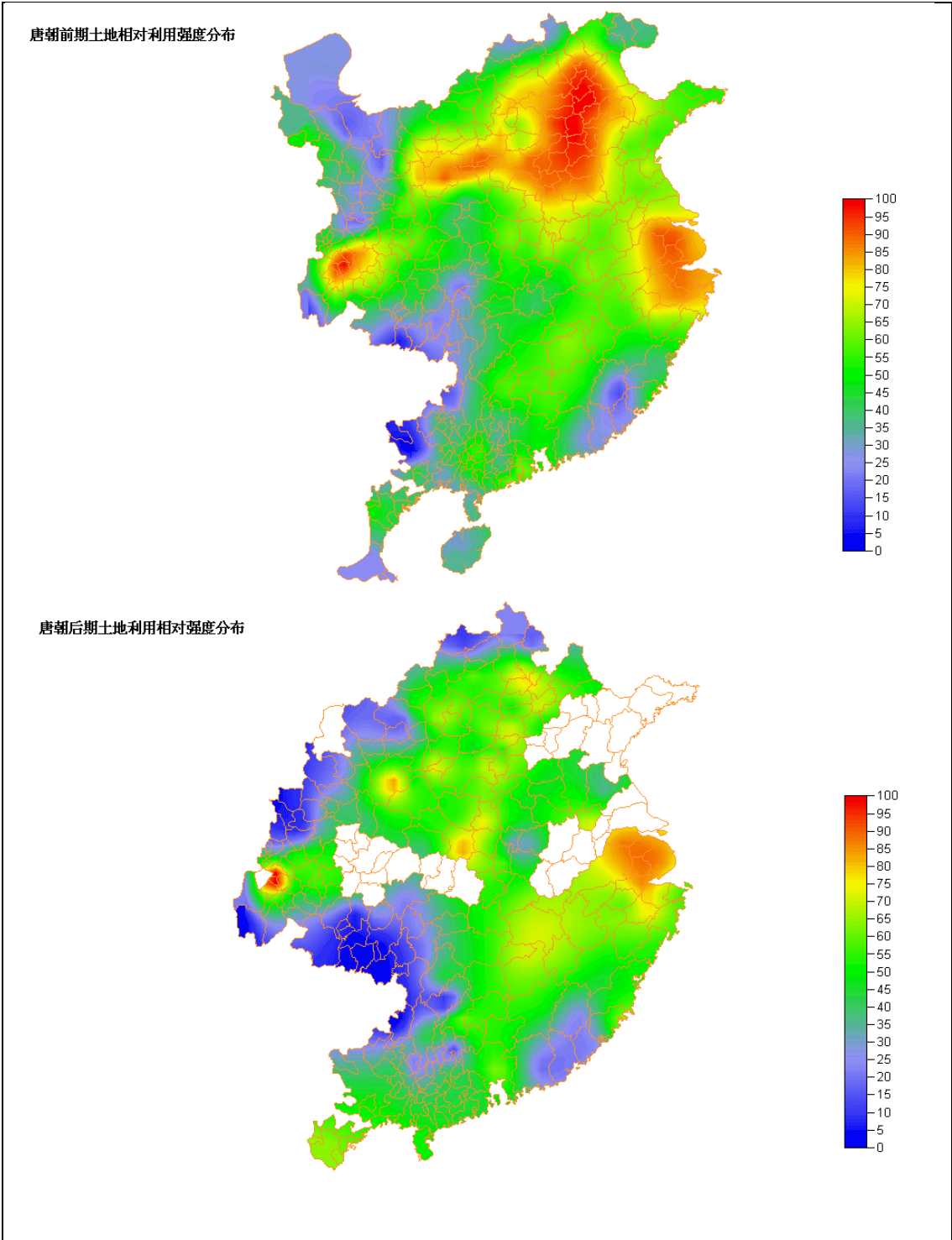
<sup>1</sup> Beijing, China Cartographic Press, 1982-1988



Sample map 1, Administrative map of Shanxi Province in Qing Dynasty  
This is a simplified map based on the map in *Historical Atlas of China*.



Sample map 2, Drought disaster loss in Shanxi and Zhili Provinces in 1877



Sample map 3, Land use in the middle and late of Tang Dynasty