THE RESEARCH OF FINE CLASSIFICATION AND CODING OF CITY GEO-NAMES

Li Ruwen, Liu Dongqin*, Li Chengming

Chinese Academy of Surveying and Mapping

KEY WORDS: Geonames, City, Fine, Classifying, Coding

ABSTRACT:

Geonames are the bridge to link the socio-economic and spatial information. Names and related information products as essential mapping information resources, People can get more relevant information via geonames to enhance work efficiency and quality of life. The paper introduces the current status of the geonames of the city, and sets forth the principle of fine classifying and coding. To ensure that the city geonames match the detailed statistics information and geo-entity, we regard the city as a coding unit, integrating the data that get from department of public security, civil administration, and statistics. The work can meet the need of "Digital City" to provide abundant geonames data for navigation and other location based server. The work must take into account the following: The first is Multi-source data names of the integration. In order to meet different need, the data are get from different departments, and how to integration the data is one of the key points. The other is coding and classifying system of City geonames. Based the coding and classifying system it is easy to locate the place we are looking for.

1. INTRODUCTION

With the development of GIS use, geonames play an increasingly important role in people's life. People can get more relevant information by geonames to enhance work efficiency and quality of life. Geonames and related information products can provide essential mapping information resources.

State Bureau of Surveying and Mapping have built a 1:1000000, 1:250000 and 1:50000 Geographical Names Database, in accordance with the needs of the national economy, and have produced better social and economic benefits. However, both in the number of names, the names of the level of detail, the current trend of names, places information about the extent of the rich should not have to meet the growing needs of the community. Cities are the centers of the economic, and city Geonames play a more important role in people's lives. Public security, statistics, civil affairs, planning department also have need in place name, many of the statistical unit known as statistical data and information necessary to unify on the basis of the geographical information platform.

So the detailed classifying and coding information of the Geonames are in urgent need.

2. ANALYSIS OF CITY GEONAMES DATA

There are no standards of city geo-names for classification and coding. When we construct the place names database, we design classification and coding rules in accordance with the own need; the geographical names data in NFGIS only has the code that represents the property, and does not strictly regulate the coding system.

And city names as a means of positioning, it should be more detailed with the classification and coding, to better serve the government, the business and the public. The identification of geographic entities is important research questions of GIS, and this is the address coding problem. There is a lot address

encoding methods according the applications, but the main is how to provide each element a particular geographical location or assigned a unique identification code.

In this research some trades have done a lot of work, such as zip code, administrative division code, roads code, rivers code. As for the city, the code is not perfect yet and there is even some contradictory. In order to provide accurate location information, we should provide a fine standardization, classification and coding method of city geonames.

3. THE FINE CLASSIFY AND CODING PRINCIPLE OF CITY GEONAMES

City Geonames Database will collect all the place names in 1:500-1:10000 series large-scale map, public security, civil affairs, department of statistics and directories, statistical data, and make them as a unit, designed to integrate all the names and then classify, coding, so it can integrate with other multi-database such as 1:50000 names database of NSDI. Thus the city Geonames will ensure detailed and relevant statistical information link to Geonames entity and meet the needs of the user for more precision and amounts of the growing geographic information for "Digital China". It also can provide fine Geonames data for common platform of city database. Fine city classification and coding of geographical names should take into account the following.

3.1 The integration of geonames data accessed from multi-department and multi-channel

The methods and data flow of how to deal with the geonames and property data from multi-source need be considered. The data from Civil Administration Department including: Humanities data, geographic entities data, economic data; the data from Public Security Department including: demographic data, the name of the resident, the Fire Services; The data from Ministry of Communications including: railway name, road name, and civil aviation; Water Resources Department

---

including: river name, the artificial channels, water supply pipeline; and so on. We will build a suitably method that can be compatible for all these kinds of data.

3.2 Set up unitive coding and classification system of City geonames

Make the city as a unit; match the address and the city geoname database, find the rules now applying of the building doorplate, summing-up, using some method such as interpolation, finally incorporated the address coding position. The accuracy of the result is determined by a lot of factors, so it is not very accurate. But in any case, it is much accurate than the postal code or by neighborhood committees to locate[1]. In order to improve the accuracy of address coding and maneuverability, it needs to establish a set of standards. This includes the standard of geoname naming, addresses standards and coding standards.

There are two way to achieve the standardization. One is widely range research first, and synthesize the opinions all relevant trades, to constitute standards (GB or City Regulation), and then extend these standards. The other is setting up the address database according to its own specifications, continuous providing these data to other trade to form the fact standard.

3.3 Reality Principles

Reality Principle needs go deep into the basic information analysis, investigate the Departments demands for the geonames about the kinds, contents, products format and the scope etc. Regard these demands as the basis factor of city names database, and make geographical names richness and detailed information.

3.4 Practical principles

Practical principles mean full account of dynamic and static information of practical value, the possibility of the data continuity obtained and updating.

Ensure the name matching accuracy. Base on the latest image data to determine changes in the geographical entity. According to the latest maps and place names and geographical names information matches the entities. To apply by the necessary method to resolve the questions that cannot locate interior or the lack of names and so on. Strengthen cooperation with civil affairs, public security, the Census and Statistics Department to ensure the Geonames standardization, authority and accuracy.

4. THE FINE CLASSIFYING AND ENCODING METHOD OF THE CITY GEONAMES

The classifying and encoding method should take the actual situation into account. There are many relevant standards which can be referenced. The main Reference standards are: Codes for the Administrative Divisions of the People's Republic of China (GB/T 2260—2007), Rules for Code Representation of Administrative Divisions under Counties (GB/T 10114).

Research the rule to define a city unit to reasonably address. In our country because of many addresses expressions involved in, such as roads, administrative boundaries, place names, house number, have been established by usage, it is difficult for a unified model.

According to the rules, geonames in accordance with its description of the scope are classified into three levels, that is administrative regions, zone or block, and building or special object. By making use of these three levels simultaneity the geoname will be located.

5. CONCLUSIONS

With the rapid development of science and technology, city geonames fine classification and coding will improve resources management, urban planning, social services, research and teaching, e-government and e-commerce, public life, etc.

It will also provide a more detailed technical support services and information for city within the national data integration.

The first part is the administrative region, then road name, zone or block name, and the last part is building address or special object. In the geonames coding, when the zone and block are both can be described, the block will have priority; when the building and special object, the building will have priority.

The structure of the code is made up three parts, the example is as following:
Beijing Changpin district Dongxiaokou |Tiantong East No.1Block |Beijing Tiantong Hospital
Beijing Haidian District|North Taiping Road |No.16 Y Courtyard
Though these applications, we can see the method is preferable for city geonames coding.

REFERENCES

[1].Wang Guimin，Li Ruwen，The city place name database research and application, item design book,2004

[2]. Xiong Yongtai, He Saifeng, Gao Sanxing: Trying to talk about the city address codes the problem, March 10, 2004

[3] The rules of coding for address in the common platform for geospatial information service of digital city

[4]Codes for the Administrative Divisions of the People's Republic of China (GB/T 2260—2007)

[5] Rules for Code Repres entation of Administrative Divisions under Counties (GB/T 10114)