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# An Integrated WebGIS-Based Mangement Platform of Geopark

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**Abstract:** After a careful examination and an extensive investigation of the Geopark development, all data of geological heritage, relevant research, tourism information and science education are integrated by the technologies of ArcGIS, MapServer and database software, based on the detailed analysis and design of system architecture, database design, map file handling, user interface design and system design features, so that a WebGIS-based management platform of Geopark can be created and all related information can be locally managed but remotely accessed. The platform has good usability, platform independence and scalability, can help administrators manage geological park easier.

Keywords: ArcGIS Server, geopark, management platform, WebGIS.

## **1. INTRODUCTION**

Geoheritage refers to the process of evolution of the Earth, in the internal and external stress geological formation, development and legacy. It can be used to trace the evolution of the Earth's geological history and is important geological phenomena [1, 2]. Geopark was founded by UNESCO. Special significance Geological Sciences, rare natural attributes, high ornamental value aesthetics and the geological heritage landscape of a certain size and distribution range are as its main body. The purpose of establishing Geopark is to maximize the development of the local economy and help people understand the evolutionary history of the living environment (Cited from Chris Woodley-Stewart, Geopark Manager, North Pennines AONB, United Kingdom). As of September 2009 to date, 65 geologicals have been added to the online world Geopark geological park, where China has 22 world geological parks. Thus, China is located in the world in the protection of the world's geological construction and geological heritage.

Construction and development Geopark important both to protect geological heritage, but also the development of new tourism resources to effectively support local economic development and employment of local residents to expand and improve the level of awareness of the protection of the residents of the geological heritage, conservation awareness and enthusiasm. Actively planning to establish Geopark Meanwhile, authorities and experts have gradually realized the need for a geographic information system (GIS) technology as the main application of information technology in this field and urgency, he proposed and established for geological parks individual information systems, in terms of geological park management, planning, etc. Information technology has been actively explore and practice [3, 4]. The downside is that most of these systems or emphasize internal business transaction management, or to highlight the performance of three-dimensional simulation mode, a small range of services to benefit narrow face.

WebGIS is a modern technology, which provides a realtime, accurate and convenient location information, and which is widely used in the department of electric power, environment protection, traffic translation and city planning. Now, the system, developed and published with WebGIS technology, is not only promoting the ability of management and protection of the tour resource, but also providing convenient to the tourist's outgoing and hunting for touring information, so that raising the service quality.

Based on a lot of references on abroad, This article discusses the implementation techniques and trends on WebGIS. By comparing various popular WebGIS secondary development technology, regardless of the system on the basis of overall demand, decided to adopt ArcGIS, MapServer, databases, and other related technologies combination as a system solution. Data base of this system is MXD files and graphics data of ShapeFile file format. Attribute data stored in an Access database and use ADO.NET data access technology. Because the system involves a lot of pictures, thus, the system uses the file system to store the picture. In addition, the system incorporates the more popular Ajax technology. Implementation of these two programs is different degrees of speeding up access speed network and enhances the user experience.

Based on the detailed analysis and design of system architecture, database design, map file handling, user interface design and system design features, initially established a geological park management system. In addition, the system reserves the interface link existing geological park site, users can easily get through this link latest information from the existing site. System is user-friendly, easy to operate, with good usability, platform independence and scalability.

### 2. WebGIS

WebGIS (Web Geographic Information Systems) refers to the geographic information systems of internet-based platforms, the client application software using network protocols used in the Internet. Geographic information system generally consists of multi-host, multi-database and multiple clients to connect to the Internet and distributed composition, including the following four parts: WebGIS browser, WebGIS server, WebGIS S Editor, WebGIS Information Agency

WebGIS via the Internet to publish geospatial data and applications to achieve spatial data sharing and interoperability, such as online inquiries for GIS information and business processes. WebGIS client uses a Web browser, such as IE, FireFox. WebGIS is the use of Internet technology to expand and improve a new technology of GIS. WebGIS's core is embedded HTTP standard application system in GIS, spatial information management and publishing Internet environment. WEBGIS can be multi-host, multi-database distributed deployment, through Internet/Intranet interconnected, is a browser/server (B/S) structure. Server provides information and services to the client, and the browser (client) have access to a variety of spatial information and application functionality.

WebGIS is the development product of Internet technology in GIS. GIS's functions can be extended through the Web, to truly become a tool for public use. From Any node of the Web, Internet users can browse the site WebGIS spatial data, producing thematic maps, as well as a variety of spatial search and spatial analysis, so that GIS will be every household.

WebGIS is the use of Web technology to expand and improve a technology of geographic information systems. It is a network-based client / server system, use the Internet to exchange information between the client and the server. It is a distributed system, the user and the server can be distributed in different locations and different computer platforms. WebGIS main role is to publish spatial data, spatial query and retrieval, spatial model service, organize Web resources.

WebGIS has the following characteristics:

(1) Globalization server applications

Worldwide, an Internet user of an arbitrary WWW node can access a variety of GIS services provided by the WebGIS server, even can be globally GIS data update.

(2) Real popular GIS

Due to the explosive growth of the Internet, Web services are in every household, WebGIS to more users with the opportunity to use the GIS. Now the popular WebGIS platform: ARCIMS; Mapgis IMS; Super Map IS; TopMap World; MapXtreme and etc. mature products at home and abroad. WebGIS can use a common browser for browsing, querying, but also through a plug (plug-in) on your browser, ActiveX controls and Java Applet to access WebGIS functions. Browsers and plug-ins are free, easy to get, and a significant widening of the range of potential users of GIS. The previous GIS due to high costs and technical difficulties, few experts have often become a professional tool, it is difficult to promote.

(3) Good scalability

WebGIS can easily integrate with other seamlessly information services in the Web, can create flexible GIS applications. (4) Cross-platform features

Before WebGIS, although some vendors for different operating systems (such as: Windows, UNIX, Macintosh) provides the appropriate GIS software versions, respectively, but no one really has a cross-platform GIS software features. The Java-based WebGIS can do "write once, run anywhere". The characteristic of cross-platform is on its head.

According to current WebGIS framework to analyze, mainly in two kinds:

(1) WebGIS of picture style, also called raster maps, vector map can also be achieved, mainly by VML;

(2) Vector map-based controls. (ActiveX, Java Applet).

Both have advantages and disadvantages development. Especially Based controls will be many restrictions. Since the release of Google Maps, maps of tile style is more popular.

WebGIS basic features

(A) WebGIS is an integrated global client / server net-work system.

(B) WebGIS applies client / server concept to perform GIS analysis tasks.

(C) WebGIS is an interactive system.

(D) WebGIS is a distributed system.

(E) WebGIS is a dynamic system.

(F) WebGIS is a cross-platform system

Taken together, the current WebGIS so have the following basic characteristics:

(1) Transmission protocol is HTTP.

(2) The main operational tasks are executed on the server, such as mapping, spatial database query, and spatial analysis.

(3) Clients typically use generic browser which able to explain HTML.

(4) Provide geographic information services, the remote server regards the WWW server information as an important juncture in and out of.

(5) Markup language WWW used plays in the GIS information and communication between the browser and the server in an important position, even if other data formats, HTML or other markup language was replaced in the future, it probably will not change.

### **3. CONSTRUCTION SITUATION OF GEOPARK GIS**

Geopark in the field of construction information management system is to establish a geological park management network, computer hardware and software as the basis, based on information technology. The network is connected to the external Internet; you can publish all kinds of scientific knowledge, news, etc. Geopark included for individual internal information systems for reporting Geopark, management, operation and maintenance, provide functional support for development planning. In this process, you should refer to the full e-government experience to the field of information technology, fit to guide the direction of data sharing platform. Under the framework of "Digital Land" framework, integrating geology, tourism, planning and other related aspects of the functional requirements and resources (hardware and software and the data) build Geopark information management and social sharing network system, promote interaction within the industry, the whole of society's data release, sharing.

Geopark information has multiple sources, such as multidimensional, multi-class features. Based on GIS, using a combination of global positioning navigation (GPS), remote sensing (RS) and the Internet technology to build information systems Geopark recognized by the industry. Geology and Mineral Point reference source of information systems thinking approach to data should be considered as the core, around the diverse functions of database development system to meet all aspects of the user's business needs, the system of operating the same data to ensure data consistency among the various levels of users.

American is the oldest national geological heritage protection, which is through the establishment of the National Park to protect geological heritage and natural environment. As of 2013 so far, the United States a total of more than 300 national parks, including the volcanic class Geopark (Hawaii), cave class national parks (Mitchel Cave Park), plate tectonics category National Park (Sunset Crater, Great valley) and so on. The establishment and construction of these parks on the information put forward higher requirements. GIS creation and development of a display of these parks are the best tool for information.

National Parks in the United States, the level of GIS applications varies, but also a wide range of scope, mainly used to help educators and administrators of the park. For example, in Hawaii Volcanoes National Park, GIS technology is used to select the rare and endangered plants and invertebrates potential habitat; In the Santa Monica Mountains National Park, the staff using the data obtained by GPS, making precision park road map and monitor the road map, and use it to plan for the future path; In the Minute Man NHP National Park, through the continuous distribution of plants, monuments, roads, landscape correlation analysis to determine priority development area; In PIC NSC National Park, GIS is used to build a three-dimensional model of the cave, find and rescue missing persons assisted action profile superimposed by building maps and historical understanding of the appropriate range of variation, and many other aspects.

It can be seen, GIS has been in the United States in all aspects of the daily management of the National Park has been applied. GIS played a huge role in environmental monitoring national parks, emergency rescue, resource protection and information campaigns, to protect the park's sustainable development have made outstanding contributions. The establishment of US National Program Office, regional technical support center and park GIS institutions, but also for the application of GIS provides a powerful technical support. However, as mentioned earlier, due to the level of management and GIS educators uneven, making the application of GIS also be further developed, especially WebGIS technology in information technology aspects of the national park. China has a vast variety of climatic characteristics and landscape features created diverse types of geological landscape; which is a lot of geological heritage is rare even in the world, with a high scientific value and aesthetic appeal. Nonetheless, China's propaganda effort in building and park geological information is not enough. So far, China's information construction Geopark also just stays in with a lot of pictures and text in support of attractions, route description etc. Technologies used are basically ASP, HTML, or a combination of both, and not a complete WebGIS system. The Big Lake National Geopark and Yuntaishan Geopark also only stay in the "Digital Park" concept stage [5-8].

And the United States as the representative of the foreign construction and management of GIS Geopark comparison, GIS construction of geopark is still in its infancy: reserve incomplete information, data standards varies greatly, PORTFOLIO less imperfect professional organizations, professionals scarcity and other factors, resulting in "Digital Park" is only in the conceptual stage. This is an urgent need for our geopark construction and development of very suited. In recent years, the planning and construction of geopark more attention, which is information technology Geopark put forward higher requirements [9].

# 4. ORGANIZATIONAL AND SCHEDULING OF BIG DATA IN REAL TIME

To achieve real-time organization and scheduling massive spatial data, the paper uses the preclude of a spatial database nodes distributed deployment. And implement unified the various nodes of the distributed deployment of spatial data and metadata through the junction global metadata. Use various distributed nodes to achieve organizational and scheduling massive spatial data. To meet the large number of users concurrent access, you need to consider how massive spatial data cache to improve the service side of the concurrent processing capabilities [10, 11].

This article abandons the whole process of the traditional pre-generated tile data. From the data deployment, use mechanism with pre-generated and integration of real-time rendering. At a high level the series, by way of a distributed real-time buffer massive tile data management. We were illustrated by an example of a Chinese Geoparks distributed deployment. Assuming the existing scale of 1: 500, 1: 250,: 50, 1 and each park: 20,1: 5 Chinese Geoparks vector data, need to deploy distributed in the form of tile data show.

We are still using the traditional quadtree algorithm (using the same origin tile, tile display resolution high to low double fold change) to achieve 1: 500, 1: 250,: 50 smallscale data grid network organization. First, the 1: 500, 1: 250, 50 scale grading several pre-generated map. Suppose you need to display the eight pre-generated image tiles, then 1: 500 China Geological Map of the four pre-generated, the series is 1-4; The 1: 250 China Geological Map of pregenerated levels, the series is 5-6; The Chinese geological map 1:50 pre-generated levels, the series is 7-8.

Fig. (1) shows the logic diagram for the mass deployment of distributed tile data.

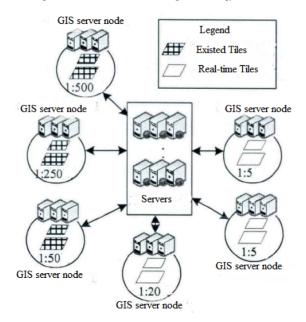


Fig. (1). Massive data distributed deployment logic diagram.

Outsourcing rectangle vector layers in the distribution of elements is  $(X_{\min}, Y_{\min}, X_{\max}, Y_{\max})$ . Since this preclude the use of quad-tree gridding methods, in order to facilitate the grid, we outsource rectangle vector data correction for a square range, as the contents of the vector data grid data range. The correction method is based on the origin  $(X_{\min}, Y_{\min})$ , as a square of side length range, then the coordinates of the upper right square is

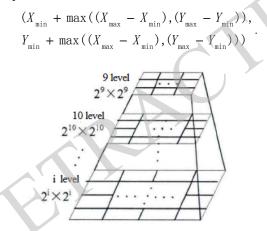


Fig. (2). Blank tiles of real-time preprocessing classification schematic.

To check the number of elements of the vector grid, we must first calculate the range of vector data Fig. (2). I-level grid vector data range is:

$$G_{\rm X}\min(i) = X_{\min} + d_i * x \tag{1}$$

$$Gy\min(i) = Y_{\min} + d_i * y \tag{2}$$

$$G_{\rm X} \max(i) = X_{\min} + d_i * (x+1)$$
 (3)

$$Gy \max(i) = Y_{\min} + d_i * (y+1)$$
 (4)

According to the grid vector data range, we can query data from a large-scale vector to vector data within the scope of the amount distributed, its vector and grid data range are stored together to end global rating Load Balancer Grid information table in.

#### 5. WEBGIS SERVICE IMPLEMENTATION

WebGIS service will probe deep gravity, magnetic, terrestrial heat flow data such as shown on the map, and provide conditions retrieval, data download and data analysis services. For WebGIS, users can query to the appropriate data set based on latitude and longitude range, keywords, time, data types, and provides download. Dataset contains metadata information, data identification information, data quality information, data distribution information, reference system information; contact the responsible unit of information, data, metadata information and corresponding data volume. In this section, based on the third chapter, first introduced with the rendering process to generate the geological layers display, and then introduced to achieve the relevant geographic information inquiry service.

Realization map service

The steps of Geopark layers generated are as follows:

(1) Import The spatial data file Shapefile to PostGIS database

Use PostgreSQL comes shp2pgsql.exe tool to convert spatial data submitted by the various research units shp format into SQL statements, execute SQL scripts generated in the database, import spatial data into a database that has been created in layers. Fig. (3) shows the spatial data magnetotelluric mt\_point.shp file into mt\_point table layers database, the database information in the table.

(2) Generate the corresponding layers through GeoServer server configuration

Download geoserver.war file from the GeoServer official website, placed into a folder under tomcat / webapp file. After starting the tomcat server, enter in the browser *http://localhost: 8080/geoserver/web/*, they saw geoserver homepage. After the admin username and password to log geoserver, in the left navigation bar, the main configuration of the Data section, including:

Workspace is a namespace, the layers together some specific functions, equivalent to the concept of the Java programming language package.

Stores data source, connect different data types, spatial database, shp file, also can be images.

Layers are the data Stores data source in the form of layers to show up to see the image in the browser.

Layer Groups are multiple layers of superimposed layers exposed as a foreign merger, usage, and usage of a single layer, the use of caching technology can improve the speed.

Styles are acting on a layer of style sheets, which can control a layer lines, points, surface thickness, color, outline, and filling and other information.

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41.006111 98.001667 09811-2_ED 0101000000 98aa2d4-bfa2-4453-923b-bb4ec 01fd2f7-d17-420-9ef1-f3dcb7f10e14   44.635399 88.042361 084582-1.e 0101000000 98aa2d4-bfa2-4453-923b-bb4ec 02dd636-e1ec-45bd-bed-a6e79rb735d   31.00842 104.00942 10431.0000 01010000000 98aa2d4-bfa2-4453-923b-bb4ec 04f699-2aa0-4201-af7-69a115255e5b   40.98155 98.32261 09811e2-1.0 01010000000 98aa2d4-bfa2-4453-923b-bb4ec 04566f79-269-45b5-116-6-116189e6aaa   30.98927 16.39966 1163140 01010000000 98aa2d4-bfa2-4453-923b-bb4ec 050691eb-2bb-45c-453-220-1-10409924ecb   26.60972 108.02264 1082740-2 0101000000 98aa2d4-bfa2-4453-923b-bb4ec 06182a11-79ab-46c4-bbb-7986224658   26.60712 108.99444 1122740-2 0101000000 98aa2d4-bfa2-4453-923b-bb4ec 084c2b8-c225-4c83-822b-371d44004a3   26.67192 108.99444 1022740-2 0101000000 98aa2d4-bfa2-4453-923b-5b4ec 081c2b8-c225-4c83-822b-371d44004a3   31.17444 103.98494 1031n2-2 0101000000 98aa2d4-bfa2-4453-923b-5b4ec 081c2b8-c225-4c83-822b-371d44004a3   31.195000 107.95272 108110021 0101000000 98aa2d4-bfa2-4453-923b-5b4ec 081c2b8-c225-4c83-822b-371d44004a3   31.195000 984	4	4	10.981583	98.432889	09841e2-2.e	01010000001	98aaa2d4-bfa2-4453-923b-5b64ec	01c3f0e2-3a69-494d-bf74-0ab254385dea	
44.635399   88.042361   08452-1.c   011000000   9saa2d4-bfa2-4453-923b-5b64c   0206656-elcc-45bd-b6ed-a6e797eb7a5d     31.0042   104.00942   10431.0000   0101000000   9saa2d4-bfa2-4453-923b-5b64c   0206655-elcc-45bd-b6ed-a6e797eb7a5d     44.989667   84.034722   0845bc2-1.0   0101000000   9saa2d4-bfa2-4453-923b-5b64c   051565c-f847-4565-a2e0-415b-516c-d1183e6aa     30.98927   16.39860   0101000000   9saa2d4-bfa2-4453-923b-5b64c   051586c5-f847-465-a2e0-101db310d038     26.610972   108.022694   10827a40-2   0101000000   9saa2d4-bfa2-4453-923b-5b64c   062cba3-e792-412-bba1-1d8899324ceb     26.671941   107.95028   10827a40-2   0101000000   9saa2d4-bfa2-4453-923b-5b64c   05136c5-r284-r458-a22a-s724-412-bba1-1d8899324ceb     26.671941   107.95028   10827mid-2   0101000008   9saa2d4-bfa2-4453-923b-5b64c   05136c7-r284-r28-a22a-s71440c4a3     28.077222   108.00061   1027mid-2   0101000007   9saa2d4-bfa2-4453-923b-5b64c   05ba0ce-0ff-4ffa-96d-b122-1454cfd5227     29.22550   098411-2   0101000007   9saa2d4-bfa2-4453-923b-5b64c   09b71d-769-4b45-9cf-1932ee63426     20.97722	5	2	26.955	119.92833	12027W10	0101000005	98aaa2d4-bfa2-4453-923b-5b64ec	01e8a5e8-913f-45a1-9332-d44bd69ca679	
31.0042   104.0042   1043.0000   010100000   9aaa2d-bfa2-4453-923b-5b64c   0447699-2aa0-4201-sfd7-69a15255e5b     40.98156   96.43261   098419c2-1.   0101000000   9aaa2d-bfa2-4453-923b-5b64c   0456679-3e99-45b5-81c6-e1d013e6aaa     30.9857   116.3956   11631840   0101000000   9aaa2d-bfa2-4453-923b-5b64c   056691cb-2b9-45c-a55e-70444bcdeaa     26.61072   108.022670   108.022670   0101000000   9aaa2d-bfa2-4453-923b-5b64c   056091cb-2b9-45c-a55e-70444bcdeaa     26.61072   108.022670   108.722640   108.72640   0101000000   9aaa2d-bfa2-4453-923b-5b64c   056091cb-2b9-45c-a55e-70444bcdeaa     26.61072   108.022604   108.727220   108.022604   102.72745   0101000000   9aaa2d-bfa2-4453-923b-5b64c   051241-79a-46c-bbb-792642545658     26.97722   108.00061   1027mid-2.   0101000000   9aaa2d-bfa2-4453-923b-5b64c   085ba0ce-0ff-42fa-969-21fa4004ad3     31.17444   103.98494   104310.22.   0101000000   9aaa2d-bfa2-4453-923b-5b64c   085b75a-42645-5921-4555-2226-2546     410.0125   95.73553   06411-1.0   0101000000   9aaa2d-bfa2-4453-923b-5b64c   08	6	4	1.006111	98.001667	09841L-2.ED	010100000E	98aaa2d4-bfa2-4453-923b-5b64ec	01fd2af7-d157-42c0-9ef1-f3dcb7f10e14	
40.981556   98.432861   09811ye2-1.   0101000002   98aa2d4-bfa2-4453-923b-5b64ec   04566f9-3e99-45b5-81c4-eld8183e6aa     44.99667   84.034722   00448mid-2.   010000002   98aa2d4-bfa2-4453-923b-5b64ec   051565c-fe47-465-a2c-1-1db310d38     30.9827   116.39860   1063126000000   98aa2d4-bfa2-4453-923b-5b64ec   051565c-fe47-465-a2c-1-1db310d38     2   26.610972   106.39860   10632740-2.   0100000000   98aa2d4-bfa2-4453-923b-5b64ec   062cba3-e792-412-b0a1-1d899324cb     2   2.6.674194   111.99444   122740-2.   01010000001   98aa2d4-bfa2-4453-923b-5b64ec   084cb58-c225-4c83-822e-3f1d149c7c34     2   2.6.674194   111.99444   1043120-20   0101000000   98aa2d4-bfa2-4453-923b-5b64ec   084cb58-c225-4c83-822e-3f1d149c7c34     3   1.98444   10331820-1   0101000000   98aa2d4-bfa2-4453-923b-5b64ec   08ba0ce-0ff4-42fa-9649-21f44004ad3     4   1.3.98606   107.78272   033120-1.   0101000000   98aa2d4-bfa2-4453-923b-5b64ec   09ab0f10-7669-4b53-9671-8274552812     4   4.10125   95.73583   094141-1.e   0101000000f   98aa2d4-bfa2-4453-923b-5b64ec	7	4	14.635389	88.042361	08845s2-1.e	0101000000	98aaa2d4-bfa2-4453-923b-5b64ec	020d6d56-e1ec-45bd-b6ed-a6e797eb7a5d	
1   44.989667   84.034722   0445mid-2.   0110000002   9saa2d4-bfa2-4453-923b-5b64cc   0518665-587-4655-a2c-1cldb310d038     30.9927   116.39866   1163140   0101000002   9saa2d4-bfa2-4453-923b-5b64cc   060691cb-2b9b-45c-a5sc-704444acdeaa     2   26.61972   108.02269   1082740-2   0101000002   9saa2d4-bfa2-4453-923b-5b64cc   060691cb-2b9b-45c-a5sc-704444acdeaa     2   27.97644   107.592028   1082740-2   01010000009   9saa2d4-bfa2-4453-923b-5b64cc   0812241-79ab-46cd-bbb4-7935625d568     2   26.67119   111.99944   102710-2   0101000009   9saa2d4-bfa2-4453-923b-5b64cc   085755-a224-c613-822a-371149c7034     3   11.7744   103.984944   1043102-2   01010000009   9saa2d4-bfa2-4453-923b-5b64cc   085775a-4450-4652-877-4855-8224-6558     3   11.77444   103.984944   1043102-2   01010000009   9saa2d4-bfa2-4453-923b-5b64cc   085775a-4d50-4654-4645-92714b460403     41.0125   95.73553   06411-1.e   01010000001   9saa2d4-bfa2-4453-923b-5b64cc   0850716-4654-837-4055-8576-4670-4576-4576-9377-45017     40.97522   95.22550   085411-2	8	3	31.00842	104.00942	10431.00000	0101000006	98aaa2d4-bfa2-4453-923b-5b64ec	04476899-2aa0-4201-af47-69a115255e5b	
30.98927   116.38966   11631E40   010100000C   98aa2d4-bfa2-4453-923b-5b64ec   060691eb-2b9-450c-a53e-70444acdeaa     2   26.610972   108.02694   1082740-2.   01000000C   98aa2d4-bfa2-4453-923b-5b64ec   062ocba3-e792-4612-0061-1d899324ecb     2   22.976444   107.55202   10823740-2.   01000000S   98aa2d4-bfa2-4453-923b-5b64ec   062ocba3-e792-4612-0bb4-79862556565     2   26.671194   11.999444   122740-2.   01000000S   98aa2d4-bfa2-4453-923b-5b64ec   08402556-0225-463-9222-3f1d1495734     3   1.777444   103.98444   104312-2.   010100000S   98aa2d4-bfa2-4453-923b-5b64ec   08bb0ce-0f6f-42fa-96d9-21f44004ad3     4   1.0125   95.375533   09641w1-1.   010100000S   98aa2d4-bfa2-4453-923b-5b64ec   08bb0ce-0f6f-42fa-96d9-21f44014a3     5   31.197444   103.98214   1043100000S   98aa2d4-bfa2-4453-923b-5b64ec   08bb11-7-669-4b45-9ecf-1932ee63426     6   40.975222   98.226306   9841e1-2.   010100000S   98aa2d4-bfa2-4453-923b-5b64ec   0ab7dd75-e04-4554-3762b77b7d17     2   31.0081   104.0099   10431.00000   010100000	9	4	10.981556	98.432861	09841je2-1.	010100000B	98aaa2d4-bfa2-4453-923b-5b64ec	045c6cf9-3e99-45b5-81c6-e1d8183e6aaa	
1   26.610972   108.02264   10827ad-2.   0.101000003 98aa2d4-bf2-4453-923b-5b64cc   062ccba3-6792-4612-bbb4-789625655     2   22.976444   107.59202   10827ad-2.   0.101000003 98aa2d4-bf2-4453-923b-5b64cc   0812241-79ab-46cd-bbb4-789625655     2   26.671494   111.99944   122740-2.   0.010000005 98aa2d4-bf2-4453-923b-5b64cc   0812241-79ab-46cd-bbb4-789625655     2   26.77122   108.00066   10827mid-2.   0.010000005 98aa2d4-bf2-4453-923b-5b64cc   08152ad1-79ab-46cd-bbb4-789625655     3   1.176444   103.92624.0   0.010000005 98aa2d4-bf2-4453-923b-5b64cc   085ba0ce-0ff-427a-96d9-12214544054257     4   1.015   95.755833   09641u-1.e   010000005 98aa2d4-bf2-4453-923b-5b64cc   09ab011d-7669-4b47-9cd-1232bef405227     28   0   010000005 98aa2d4-bf2-4453-923b-5b64cc   09ab011d-7669-487-48b-act-5757d17     104.099   1043.00000   010000000 98aa2d4-bf2-4453-923b-5b64cc   0b6204d-2e31-453-48b-ab1-b11b07d0764     28   0   10400090   010000000 98aa2d4-bf2-4453-923b-5b64cc   0b6204d-2e31-453-48b-ab1-b11b07d0764     29   2.80   0   010000000 98aaa2d4-bf2-4453-923b-5b64cc   0b6204d-2e31-450-48	10	4	14.989667	84.034722	08445mid-2.	010100000E	98aaa2d4-bfa2-4453-923b-5b64ec	051586c5-f847-4865-a2e0-1c1db310d038	
1   22.976444   107.59202   10823440-1   0101000003   95aa2d4-bf2-4453-923b-5b64cc   08162b5a-c225-4c83-822a-3f1d1497c34     2   26.674194   111.999444   1122740-2   0101000005   95aa2d4-bf2-4453-923b-5b64cc   081c2b5a-c225-4c83-822a-3f1d1497c34     2   6.97222   108.00061   10827mid-2.   0101000005   95aa2d4-bf2-4453-923b-5b64cc   085c2b5a-c225-4c83-822a-3f1d1497c34     3   1.177444   103.98494   10431n20-2.   0101000005   95aa2d4-bf2-4453-923b-5b64cc   085775a-4c0-469-b12-14564fc5227     3   1.195006   107.962722   10831n20-2.   0101000005   95aa2d4-bf2-4453-923b-5b64cc   085775a-4c0-469-b12-14564fc5227     4   4.0125   95.73583   09641u1-1.   0101000005   95aa2d4-bf2-4453-923b-5b64cc   08cb15-eff4-052-bf2-0f751264C0     28   0   0101000000   95aa2d4-bf2-4453-923b-5b64cc   08cb12-eff4-fc2-453-925b-5b64cc   08cb12-eff4-fc2-453-925b-5b64cc   08cb12-eff4-fc2-453-925b-5b64cc   08cb12-eff4-fc2-453-925b-5b64cc   08cb12-eff4-fc2-453-925b-5b64cc   08cb12-eff4-fc2-453-925b-5b64cc   08cb12-eff4-fc2-453-925b-5b64cc   08cb12-eff4-fc2-453-925b-5b64cc   08cb12-eff4-fc2-453-925b-5b64cc   08cb	11	3	30.98927	116.38966	11631E40	0101000000	98aaa2d4-bfa2-4453-923b-5b64ec	060691eb-2b9b-45cc-a53e-704444acdeaa	
26.674194   111.999444   1127240-2.   0101000002   98aa2d4-bfa2-4453-923b-5b64ec   084c2b58-c225-4c83-822e-3f1d149c7c34     26.97122   108.00061   10827mid-2.   0101000002   98aa2d4-bfa2-4453-923b-5b64ec   084c2b58-c225-4c83-822e-3f1d149c7c34     31.07744   103.989494   1043120-2.   0101000000   98aa2d4-bfa2-4453-923b-5b64ec   085ba6ce-0ff4-2f1a-96d9-21f44004ad3     31.07744   103.989494   1043120-2.   0101000000   98aa2d4-bfa2-4453-923b-5b64ec   08ba6ce-0ff4-2f1a-96d9-21f44004ad3     40.97522   98.226306   098411-1.e   01010000005   98aa2d4-bfa2-4453-923b-5b64ec   09ab0f1d-76c9-4b45-9cf1-1932ee63426     28   098412-2.e   01010000005   98aa2d4-bfa2-4453-923b-5b64ec   0ab7dd9-8a77-4b8b-a8ta-fb1fb07d0764     31.001   104.0090   98aa2d4-bfa2-4453-923b-5b64ec   0ab7dd9-8a77-4b8b-a8ta-fb1fb07d0764     31.001   104.00000   98aa2d4-bfa2-4453-923b-5b64ec   0ba2d9-67c6-4fc8-3944-f96-b824-f960-b824-f960-b824-f96-c964608-2d60-4939-f96-b824-f96-b824-f96-b82	12	2	26.610972	108.022694	10827s40-2.	0101000003	98aaa2d4-bfa2-4453-923b-5b64ec	062ccba3-e792-4e12-b0a1-1d8899324ecb	
i   26.97722   108.00061   10227mid-2   0.01000007   98aa2d4-bfa2-4453-923b-5b64cc   0857nf3-4dc0-469d-bl2-1444004a3     31.177444   103.984944   1043102-2   0101000007   98aa2d4-bfa2-4453-923b-5b64cc   0857nf3-4dc0-469d-bl2-145e4fd5287     31.197640   107.96272   1083102-1   0101000007   98aa2d4-bfa2-4453-923b-5b64cc   0980711-76c9-4645-9cf-1332ce68426     41.0125   95.73553   096411-1.e   01010000007   98aa2d4-bfa2-4453-923b-5b64cc   09eab15-effa-4039-97ca-7C39fb329812     24.0125   95.22560   098411-2.e   01010000007   98aa2d4-bfa2-4453-923b-5b64cc   09eab15-effa-4039-97ca-7C39fb329812     28.0   08411-1.e   01010000007   98aa2d4-bfa2-4453-923b-5b64cc   09eab16-8a77-4b68-9a77-4b68-bac-4a54-400052bc     28.0   01010000007   98aa2d4-bfa2-4453-923b-5b64cc   0bacb4dc-2811-451hc0052bc     30.9053   116.02488   116315   01010000007   98aa2d4-bfa2-4453-923b-5b64cc   0bacb4dc-281-453-454bc-967hc4bc26314     30.9053   116.02488   116315   01010000007   98aa2d4-bfa2-4453-923b-5b64cc   0bacb4dc-281-453-923b-5b64cc   0bacb4dc-281-453-923b-5b64cc   0bacb4dc-281-453-4545-925b-5b64cc <th>13</th> <td>2</td> <td>22.976444</td> <td>107.592028</td> <td>10823w40-1.</td> <td>0101000003</td> <td>98aaa2d4-bfa2-4453-923b-5b64ec</td> <td>08182a41-79ab-46cd-bbb4-7898625d5658</td> <td></td>	13	2	22.976444	107.592028	10823w40-1.	0101000003	98aaa2d4-bfa2-4453-923b-5b64ec	08182a41-79ab-46cd-bbb4-7898625d5658	
i   31.177444   103.984944   10431n20-2.   0101000000   98aa2d4-bfa2-4453-923b-5b64ec   08077fsa-ddc0-469d-bl22-14584fdc5287     i   31.19606   107.962722   1081n20-1.   010000000   98aa2d4-bfa2-4453-923b-5b64ec   09ab0f1d-7609-4b45-9cef-1932e6e5326     i   41.0125   95.73553   066141-1.   0101000000   98aa2d4-bfa2-4453-923b-5b64ec   09ab0f1d-7609-4b45-9cef-1932e6e5326     i   40.975222   98.226306   09641e1-2.   0101000005   98aa2d4-bfa2-4453-923b-5b64ec   0ab7dde9-ear7-4b5b-ae64-54f40c0052be     i   40.975222   98.226306   0941e1-2.   0101000005   98aa2d4-bfa2-4453-923b-5b64ec   0ab7dde9-ear7-4b5b-ae64-54f40c0052be     i   31.0081   104.0099   10431.0000   01010000005   98aa2d4-bfa2-4453-923b-5b64ec   0b62d496-f766-4fc9-384-f96e-b562c707     i   31.0811   104.0099   10431.00000   98aa2d4-bfa2-4453-923b-5b64ec   0b62d496-f766-4fc9-384-f96e-b562c707     i   42   0101000001   98aa2d4-bfa2-4453-923b-5b64ec   0b62d96-f766-4fc9-3884-f96e-b562c707     i   45.456   86.01797   08645n2-2.e   0101000001   98aaa	14	2	26.674194	111.999444	11227s40-2.	010100000B	98aaa2d4-bfa2-4453-923b-5b64ec	084c2b58-c225-4c83-822e-3f1d149c7c34	
31.196806   107.962722   10831n20-1.   0101000000 98aa2d4-bfa2-4453-923b-5b64ec   09ab0f1d-76c9-4b45-9cef-1932ee683426     41.0125   95.73563   0964lul-1.e   0101000000 98aa2d4-bfa2-4453-923b-5b64ec   09ab0f1d-76c9-4b45-9cef-1932ee683426     40.97522   98.22566   0984lul-2.e   0101000000 98aa2d4-bfa2-4453-923b-5b64ec   09ab0f1d-76c9-4b45-9cef-1932ee683426     28   0981el-2.e   0101000000 98aa2d4-bfa2-4453-923b-5b64ec   05ab0f2d-267767b7d17     1   31.0081   104.0090   10431.000000   98aa2d4-bfa2-4453-923b-5b64ec   0b624d95-877-4b50-8a74-d706-5bf67b7d17     1   30.99053   116.02488   116315P   0101000000 98aa2d4-bfa2-4453-923b-5b64ec   0b624d96-7c6-4fc8-9384-f9ecb5de2070     24   0101000000 98aa2d4-bfa2-4453-923b-5b64ec   0b62d96-7c6-4fc8-9384-f9ecb5de2070   0101000000 98aa2d4-bfa2-4453-923b-5b64ec   0b62d96-7c6-4fc8-9384-f9ecb5de2070     24   0101000000 98aa2d4-bfa2-4453-923b-5b64ec   0b62d96-7c6-4fc8-9384-f9ecb5de2070   0101000000 98aa2d4-bfa2-4453-923b-5b64ec   0b62d96-7c6-4fc8-9384-f9ecb5de2070     24   37.118944   85.99278   064551-2-2   0101000000 98aa2d4-bfa2-4453-923b-5b64ec   0c482c8-1f69-4664-824-54545437     24   37.118948	15	2	26.977222	108.000861	10827mid-2.	010100000E	98aaa2d4-bfa2-4453-923b-5b64ec	085ba0ce-0f8f-42fa-96d9-21f4a4004ad3	
Image: 1   41.0125   95.73583   09641wl-1.e   01010000005   98aa2d4-bfa2-4453-923b-5b64ec   09eab15e-ef8a-4039-87ca-7c39fb329812     40.975222   99.226306   09641e1-2.e   01010000005   98aa2d4-bfa2-4453-923b-5b64ec   0ab7de9-8a77-4b8b-ae4a-54f40c052be     28   01010000005   abaa2d4-bfa2-4453-923b-5b64ec   0ab7dde9-8a77-4b8b-ae4a-54f40c052be     31.0021   104.0099   10431.0000   01010000005   abaa2d4-bfa2-4453-923b-5b64ec   0ad7dd75-e004-495d-a706-b9f677b7dd17     30.9953   116.0248   11631F   01010000005   98aa2d4-bfa2-4453-923b-5b64ec   0b62d96-f766-4fc8-9384-f98ecb64e2010     42   0101000001   abaa2d4-bfa2-4453-923b-5b64ec   0bf2d396-f766-4fc8-9384-f98ecb64e2011     45.456   86.01792   08645n2-2.e   01010000005   98aa2d4-bfa2-4453-923b-5b64ec   0bf26a3-f669-4968-a24-5bd58ac10337     44.81319   86.005   08645n2-2.e   01010000005   98aa2d4-bfa2-4453-923b-5b64ec   0bf26a3-f669-4968-a24-5bd58ac10337     42.81519   86.00772   08645n2-2.e   01010000005   98aa2d4-bfa2-4453-923b-5b64ec   0bf26a3-f669-4968-a24-5bd58ac16337     44.813138   86.005   08645n2-2.e	16	3	31.177444	103.984944	10431n20-2.	0101000000	98aaa2d4-bfa2-4453-923b-5b64ec	08877f5a-4dc0-469d-b182-145e4fdc5287	
40.975222   98.226306   09841e1-2.e   0101000000   98aa2d4-bfa2-4453-923b-5b64ec   0ab7dde9-8a77-4b8b-ae4a-54f40c0052be     28   31.001   104.0090   98aa2d4-bfa2-4453-923b-5b64ec   0ab7dde9-8a77-4b8b-ae4a-54f40c0052be     31.001   104.0090   10431.000000   98aaa2d4-bfa2-4453-923b-5b64ec   0ab7dde9-8a77-4b8b-ae4a-54f40c0052be     4   30.9903   116.02488   10431.000000C   98aaa2d4-bfa2-4453-923b-5b64ec   0b62d99-676-4fc8-3984-766-2b8767b7dd17     42   0101000000C   98aaa2d4-bfa2-4453-923b-5b64ec   0b62d99-676-4fc8-3984-796e-b85623114d     5   37.118944   83.993278   08437n1-1.e   0101000000   98aaa2d4-bfa2-4453-923b-5b64ec   0b62d99-676-4fc8-481-54db98c10337     6   45.456   86.01797   06455n2-2.e   0101000000   98aaa2d4-bfa2-4453-923b-5b64ec   0b462c8-7669-486-824-5bd59ac10337     7   06455n2-2.e   01010000000   98aaa2d4-bfa2-4453-923b-5b64ec   0b462c8-7669-486-824-5bd59ac10337     8   45.951   1627440-2.   01010000000   98aaa2d4-bfa2-4453-923b-5b64ec   0b462c8-7669-486-484-5bc9678     9   26.99525   116.220222   11627420-2.   010	17	3	31.196806	107.962722	10831n20-1.	010100000F	98aaa2d4-bfa2-4453-923b-5b64ec	09ab0f1d-76c9-4b45-9cef-1932ee6e3426	
28   9   010100000c adb4db5-964d-4b56-964d-4b56-964c   0ach4dc-2e11-453b-abb1-bb1tb01d0744     1   31.0081   104.0090   10431.0000   010100000c 95aa2d4-bf22-4453-923b-5b64c   0acfdd75-e004-495d-a956-706-4956-706-706-706-706-706-706-706-706-706-70	18	4	1.0125	95.735833	09641w1-1.e	0101000005	98aaa2d4-bfa2-4453-923b-5b64ec	09eab15e-ef8a-4039-87ca-7c39fb329812	
31.0081   104.0099   10431.00000   planazda	19	4	10.975222	98.226306	09841e1-2.e	0101000000	98aaa2d4-bfa2-4453-923b-5b64ec	0ab7dde9-8a77-4b8b-ae4a-54f40c0052be	
1   30.9953   116.02488   11631SP   0101000000 95aa2d4-bfa2-4453-923b-5b64ec   0b624d96-f7c6-4fc8-9384-f9ecb5de2070     42   37.11944   83.99278   0437n1-1.e   0101000000 95aa2d4-bfa2-4453-923b-5b64ec   0b62d996-f7c6-4fc8-9384-f9ecb5de2070     4   45.456   86.017972   0645n2-2.e   0101000000 95aa2d4-bfa2-4453-923b-5b64ec   0bfc3a-f669-4960-824-5b545e31c337     4   44.81919   86.005   0645n2-2.e   0101000000 95aa2d4-bfa2-4453-923b-5b64ec   0c452-3-f669-4960-824-5b545e31c337     5   27.007528   115.6195   1162740-2.   0101000000 95aa2d4-bfa2-4453-923b-5b64ec   0c4608-2df0-493-9ff2-bc4835806ff8     4   26.99525   116.202022   110000000 95aa2d4-bfa2-4453-923b-5b64ec   0c4608-2df0-493-9ff2-bc4835806ff8     31.9213   115.8665   1631W   01010000000 95aa2d4-bfa2-4453-923b-5b64ec   0ff307c-b864-6eca-bsf2b-442199696	20	28				0101000006	adb4d6b5-964d-4b2d-b386-3efef5	0acb84dc-2e31-453b-a8b1-fb1fb07d0764	
42   42   6   01010000001   adb4d6b5-964d-4b2d-b386-3efet5   0ba801a8-e188-401d-881f-54dbd263114d     37.118944   83.993276   084371n1-1.e   01010000009   98aa2d4-bf22-4453-923b-5b4dec   0bbf62a3-f669-4960-a824-5bd59ac1c337     4   54.565   86.017972   086451-2.e   01010000009   98aa2d4-bf22-4453-923b-5b6dec   0bbf62a3-f669-4960-a824-5bd59ac1c337     4   44.819139   86.005   086451-2.e   0101000000   98aa2d4-bf22-4453-923b-5b6dec   0280301-881d-41c2-897d-201bcd8df39     7   27.007528   116.5195   1167740-2.   0110000000   98aa2d4-bf22-4453-923b-5b6dec   0cd80a3-2f60-4693-96f6-cbd8-3506f8a     8   26.99525   116.220222   110000000   98aa2d4-bf22-4453-923b-5b6dec   0cd80a3-2f60-4694-952b-452b42109096     31.99213   115.8663   16311W   00100000000   98aa2d4-bf22-4453-923b-5b6dec   0f98d07c-4894-4614-9829-38f950b6830	21	3	31.0081	104.0099	10431.00000	010100000B	98aaa2d4-bfa2-4453-923b-5b64ec	0ad7dd75-e004-495d-a706-b9f677b7dd17	
37.118944   83.993278   08437n1-1.e   01010000008   98aaa2d4-bfa2-4453-923b-5b64ec   0bbf62a3-f669-4968-a824-5bd59ac1c337     45.456   86.017972   08645n2-2.e   01010000008   98aaa2d4-bfa2-4453-923b-5b64ec   0c482c3-f669-4968-a824-5bd59ac1c337     44.81913   86.005   08645n2-2.e   01010000008   98aaa2d4-bfa2-4453-923b-5b64ec   0c482c3-f669-4968-a824-5bd59ac1c337     7   27.007528   15.6195   08645n2-2.e   01010000008   98aaa2d4-bfa2-4453-923b-5b64ec   0c482c3-f669-4968-a824-59d2-4963-926     8   27.007528   116.27940-2.   0101000000C   98aaa2d4-bfa2-4453-923b-5b64ec   0c480a8-2d10-439-917     9   26.99525   116.22022   110200000C   98aaa2d4-bfa2-4453-923b-5b64ec   0f98d07-4896-4eed-a55e-bf2b42109696     31.98213   15.8865   16311W   0101000000C   98aaa2d4-bfa2-4453-923b-5b64ec   0f98d07-4ed14-9829-3f4950b6830	22	3	80.99053	116.02488	11631SP	0101000000	98aaa2d4-bfa2-4453-923b-5b64ec	0b624d96-f7c6-4fc8-9384-f9ecb5de2070	
4   45.456   86.017972   08645n2-2.e   01010000009   98aa2d4-bfa2-4453-923b-5b64ec   0c482ce3-f60a-431e-92fa-ed8bfe637d50     4   44.819139   86.005   08645n1-2.e   01010000009   98aa2d4-bfa2-4453-923b-5b64ec   0c482ce3-f60a-431e-92fa-ed8bfe637d50     7   27.007528   115.6195   11627w40-2.   0101000000   98aa2d4-bfa2-4453-923b-5b64ec   0edc608a-2df0-4d93-9f8f-cbde35a06f86     6   26.99525   116.27w40-2.   0101000000   98aa2d4-bfa2-4453-923b-5b64ec   0edc608a-2df0-4d93-9f8f-cbde35a06f86     1   26.99525   116.27w20-2.   0101000000   98aa2d4-bfa2-4453-923b-5b64ec   0f8dc70-cb86-4ce4-ab5e-bf22109c96     31.09213   115.88663   11631W0   0101000000   98aa2d4-bfa2-4453-923b-5b64ec   0f1b11-b79e-4d14-9829-38f4950b6830	23	42				01010000001	adb4d6b5-964d-4b2d-b386-3efef5	0ba801a8-e188-401d-881f-54dbd263114d	
44.819139   86.005   08645s1-2.e   0101000000E   98aa2d4-bfa2-4453-923b-5b64ec   0c880301-881d-41c2-897d-201bced8df39     27.007528   115.6195   11677w40-2.   0101000000C   98aa2d4-bfa2-4453-923b-5b64ec   0c880301-881d-41c2-897d-201bced8df39     26.99525   116.22022   1167.2022   1167.2022   01000000C   98aa2d4-bfa2-4453-923b-5b64ec   0febdor-ab5e-bf2b42109096     31.99213   115.88663   11631W   0101000000C   98aa2d4-bfa2-4453-923b-5b64ec   0ffb1a1-b79e-4d14-9829-3ff950b6830	24	3	37.118944	83.993278	08437n1-1.e	0101000008	98aaa2d4-bfa2-4453-923b-5b64ec	0bbf62a3-f669-4968-a824-5bd59ac1c337	
27.007528   115.6195   11627w40-2.010100000C   98aa2d4-bfa2-4453-923b-5b64ec   0edc608a-2df0-483-9ff-cbe85806ff8     26.99525   116.220222   11627e20-2.010100000C   98aa2d4-bfa2-4453-923b-5b64ec   0f98d07c-b896-4eed-ab5e-bf2b42109696     31.99213   115.88653   11631W   010100000C   98aa2d4-bf22-4453-923b-5b64ec   0f98d07c-b896-4eed-ab5e-bf2b42109696	25	4	15.456	86.017972	08645n2-2.e	0101000009	98aaa2d4-bfa2-4453-923b-5b64ec	0c482ce3-f60a-431e-92fa-ed8bfe637d50	
26.99525   116.220222   11627e20-2.   01010000000   98aaa2d4-bfa2-4453-923b-5b64ec   0f98d07c-b896-4eed-ab5e-bf2b42109696     31.09213   115.88663   11631NW   01010000000   98aaa2d4-bfa2-4453-923b-5b64ec   0fb61a1-b79e-4d14-9829-38f4950b6830	26	4	4.819139	86.005	08645s1-2.e	010100000B	98aaa2d4-bfa2-4453-923b-5b64ec	0c880301-881d-41c2-897d-201bced8df39	
31.09213 115.88663 11631NW 010100000C 98aaa2d4-bfa2-4453-923b-5b64ec 0ffb61a1-b79e-4d14-9829-38f4950b6830	27	2	27.007528	115.6195	11627w40-2.	01010000000	98aaa2d4-bfa2-4453-923b-5b64ec	0edc608a-2df0-4d93-9f8f-cbde35a06f8a	
	28	2	26.99525	116.220222	11627e20-2.	01010000000	98aaa2d4-bfa2-4453-923b-5b64ec	0f98d07c-b896-4eed-ab5e-bf2b42109c96	
45.008444 83.805806 08445w1-2.e 0101000000E 98aaa2d4-bfa2-4453-923b-5b64ec 1025a406-5c74-4a27-bfa4-5882b92eb325	29	3	81.09213	115.88663	11631NW	01010000000	98aaa2d4-bfa2-4453-923b-5b64ec	0ffb61a1-b79e-4d14-9829-38f4950b6830	
	30	4	15.008444	83.805806	08445w1-2.e	010100000E	98aaa2d4-bfa2-4453-923b-5b64ec	1025a406-5c74-4a27-bfa4-5882b92eb325	

Fig. (3). Data information in the mt point data table.

When configuring Layer, create a Workspace. After the namespace created, create a data source, data source into vector data and raster data sources are two sources. The system uses the vector data source PostGIS. When configuring, database fill layers; user and passwd are connected postgis database user name and password that postgres and postgres. This database and imported into PostGIS spatial data to establish contact. After the Store addition is complete, the next step is to add a layer. Click Data-> Layers-> Add a new resource, select a data source. List shows sbtc: test this table data source connection to the database. Spatial database each table corresponds to a layer. Click the "publish", will be able to publish the data table into a new layer, and provides WFS, WMS, WCS services for this layer. Which, WMS is a data table showing the data to map out the form with map navigation; WFS is to provide data query capabilities on the layer.

When create a configuration layer, choice EPSG:4326 for SRS. And GeoServer will automatically calculate the latitude and longitude range in the coordinate of EPSG:4326. Over to the next, through the preparation of SLD file, used to render graphics on the map to determine the style of map elements, then map layers successfully posted.

### **CONFLICT OF INTEREST**

The authors confirm that this article content has no conflict of interest.

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