

Chapter 20

Research and Design of Geospatial Metadata Deployment Prototype System Based on PHP Framework

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ABSTRACT

As a public service platform of geographic information, National Geospatial Data Center (NGDC) can provide geospatial metadata services for data producers and data users. This paper firstly analyzes the problems in the development and maintenance of geospatial metadata deployment system. Then it describes and analyzes the characteristics of PHP framework and the advantages of developing content management system (CMS) with it. Finally, how to design geospatial metadata deployment system based on PHP framework is discussed in this paper.

INTRODUCTION

Geographic Information Systems (GIS) are computer-based systems which can process, store, manage, analyze and describe much dynamic spatial information by means of the management of geographic images and attribute data. Needless to say, it is very important for most GIS users to acquire and integrate the geospatial information from various districts. In China, some brilliant achievements have been made in the production of spatial data and the construction of geospatial databases. However, the current situation of geospatial information production and dissemination is still unsatisfactory. For example, GIS users don't know how to get geospatial data which is useful for their applications. On the other hand, the duplication of geospatial data production widely exists due to lack of mechanisms for coordination and cooperation.

With the continuous development of GIS, Internet, information technology and other related technologies, geospatial data are increasingly being applied to our daily life. Geospatial data are applied into

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all kinds of GIS applications, such as GPS car navigation, toponym query, metro and bus lines query, hotel catering and accommodation query and so on. With the deepening of the construction process of “Digital City”, GIS applications put forward higher requirements in geospatial data updates and services. (Yu et al., 2010; Chen 2012)

National Geospatial Data Center (hereinafter referred to as “NGDC”) is a public information service platform whose main task is to deploy geospatial metadata to data users efficiently. NGDC is one of the most important parts in the National Spatial Data Infrastructure (NSDI). NGDC must harmonize the relationship among geospatial data producers, managers and users. What’s more, it will be in favor of the nation-wide geospatial data sharing and decrease the repeated investment of the GIS industry.

Geospatial metadata refers to the description of geospatial data and information resources. In fact, it is the generalization and extraction of the attributes and spatial characteristics of geospatial data set or products. GIS users can get to know the name, source, structure, applied fields and other characters of geospatial data sets from their geospatial metadata. GIS users query geospatial metadata through Internet in order to know what geospatial data is being produced, how about its quality, where it is produced, and so on.

In other words, in NGDC the organization and management of data is involved with the geospatial metadata. Its main task includes developing the geospatial metadata standards, collecting geospatial metadata provided by the data producers, providing query service of geospatial metadata for data users through the network.

Currently, in the development and maintenance of geospatial metadata deployment systems or websites there are some problems, such as the inefficiency caused by repetitive work, the difficulties in management from the variety of deploying metadata forms.

With the author’s experience of developing content management systems (CMS) with PHP framework, this paper presents some new ideas on how to design geospatial metadata deployment system or website in order to meet the requirements of the potential data users to search for existing spatial data products quickly.

PROBLEMS IN THE DEVELOPMENT AND MAINTENANCE OF GEOSPATIAL METADATA DEPLOYMENT SYSTEM

In NGDC the organization and management of data is involved with the geospatial metadata. There are some problems in the development and maintenance of geospatial metadata deployment system or website provided by NGDC which is a bridge between geospatial data producers and data users.

Inefficiency from the Repetitive Development of Man-Machine Interface

The key to developing geospatial metadata deployment system is to provide convenient metadata query to the user in a reasonable user-friendly interface. Sometimes there are changes in the content which the data users concerned about. Then the system needs to adjust its human-machine interface or webpage style to adapt to this change.

The development of most of metadata deployment system does not use the framework in which data, services and interface are separated or layered. Function development and interface design are combined too tightly. So when the adopted data standards changes, even if the user sees interface without any

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