



M-A model of agricultural remote sensing monitoring metadata based on grid environment

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ABSTRACT

The increase of the amount of agricultural remote sensing monitoring data makes it difficult for data storage and management thereby limiting the utilization of data resources. Considering the security and response time, the original data cannot be directly exposed on the Internet for user queries. Therefore, there is an urgent need to organize and describe agricultural remote sensing monitoring data effectively for users to understand and query. In this paper, based on a detailed analysis, for rational planning and organizing of agricultural remote sensing monitoring data resources, a M-A (Metadata of Agricultural Remote Sensing Monitoring Data) model is constructed with the study of data characteristics and the Grid environment. The M-A model structure and its contents are designed using the XML language which gives a relatively comprehensive description of agricultural remote sensing monitoring data and the Grid environment. In summary, the study of this paper provides a practical and effective support for data standardization, sharing, exchanging and integration under the Grid environment.

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1. Introduction

After more than ten years of sustained development of the Chinese agriculture monitoring business, a massive amount of different types and various categories of data have accumulated, and a large, distributed, heterogeneous, diverse scientific data group has been set up [1]. How to effectively share and manage those data for utilization, exchange and integration has become a major challenge. Metadata is an effective approach on data description, organization and management and provides a mechanism for searching, managing, sharing, exchanging and integrating agricultural remote sensing monitoring data conveniently. The design of a agricultural remote sensing monitoring metadata model will directly affect the performance and efficiency of data management and positioning [2–6]. Therefore, a rational and scientific metadata model will offer the foundation for agricultural remote sensing monitoring data sharing based on a Grid environment. It effectively improves recall and precision of searching by using metadata, and eliminates the semantics independence and heterogeneity between resources.

According to the above discussion, based on the detailed analysis, rational planning and organizing on agricultural remote sensing monitoring data resource, a M-A (Metadata of Agricultural Remote Sensing Monitoring Data) model is constructed with the focus on data characteristics and the Grid environment. Then the structure and content of the M-A model is designed and expressed. The contribution of this study is providing a necessary solution for the realization of standardization, sharing, exchange and integration of agricultural remote sensing data based on the Grid environment.

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