

工程与应用

分布式地球系统科学数据共享平台研究

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摘要 科学数据共享平台是科学数据共享活动的重要支撑, 既是标准规范和数据资源物化的平台, 又是用户服务的窗口, 其关键是要实现数据资源由数据生产者向数据使用者的流动。在分析分布式地球系统科学数据共享平台内涵的基础上, 提出了以“总中心、认证中心和若干分中心”为构架的“物理上分布、逻辑上统一”的分布式软件体系。对用户单点登录与权限认证、数据中心信息同步、元数据汇交与同步收割、多源异地数据资源透明访问等关键技术进行了详细的论述。基于Java EE环境, 研制开发了分布式地球系统科学数据共享平台, 软件平台能够实现跨部门、跨操作系统的部署。目前, 软件平台已经部署在总中心和13家分中心, 为用户提供了稳定的“一站式”数据共享服务。

关键词 [地球系统](#) [科学数据](#) [数据共享](#) [网络服务](#)

分类号

Research on distributed earth system scientific data sharing platform

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Abstract

Scientific data sharing platform is an important supportive infrastructure for scientific data sharing activities, it is not only a platform for integrating data resources and implementing technical standards or management policies but also a window for user services. The main objective of this platform is to drive scientific data resources from producers or holders to end users. After examining focal points in distributed earth system scientific data sharing, authors design a platform software system composed of “one main center, one certification & authentication center and several sub-centers” which forms a “geographically distributed but logically integrated” distributed network. Then, some key techniques are discussed in detail in this paper, i.e. single sign on, information synchronization between data centers, real time decentralized metadata submitting and harvesting and universal data resources access. By using Java EE technology, authors develop the distributed earth system scientific data sharing software. The software can be deployed easily across multi-departments and on different operating systems. Powered by this platform software, the Earth System Scientific Data Sharing Network which composed of one main center and 13 sub-centers is set up, it has provided about 14 TB data services for 33 515 users and 270 national key scientific research programs for free till the time of this writing.

Key words [earth system](#) [scientific data](#) [data sharing](#) [Web services](#)

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