

Research and Implementation of Coal Spontaneous Combustion Remote Sensing Images Release and Distributed Processing based on ArcGIS Server

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Abstract: Coal spontaneous combustion remote sensing image, is the important data source for studying its carbon emissions, and also is the primary means of determining the scope of coalfield fire area and burning degree. In order to better manage a large number of coal spontaneous combustion remote sensing images, the realization of remote sensing images browse, search, retrieval, processing and other functions, while achieving the purpose of the image resource sharing, the traditional image management mode and mutually independent development and closed system has been not meet the requirements. In view of existing shortcomings, this paper selects the way of ArcSDE for Oracle11g to store massive remote sensing images, can be effective for unified storage of remote sensing images, multi-user concurrent access and a long transaction management. Then, combined with ArcGIS Server technology, by the way of ArcGIS Image Service, publishes service for remote sensing images in Oracle. Finally, used of the ArcGIS API for Silverlight, WCF RIA services and other new WebGIS technology, implement the function of remote sensing image retrieval and distributed query processing on client. According to the solution, this paper designs the overall framework of coal spontaneous remote sensing service release and the relevant functional modules, also discuss the key technologies involved in the system. Studies show that the scheme can effectively improve the efficiency of image storage management and publishing, while using rich client Silverlight technology can give users to bring rich and interactive experience for the distributed image processing on client.

Keyword: Coal Spontaneous Remote Sensing; ArcGIS Server; ArcSDE for Oracle; Silverlight; WCF RIA Service