

IAF EARTH OBSERVATION SYMPOSIUM (B1)
Interactive Presentations - IAF EARTH OBSERVATION SYMPOSIUM (IP)

Author: Dr. Wei Wan

China Center for Resources Satellite Data and Application (CRESDA), China, wanwei829@163.com

Dr. Haoping Zhang

China Center for Resources Satellite Data and Application (CRESDA), China, cugzhp@163.com

Dr. Li Liu

China Center for Resources Satellite Data and Application (CRESDA), China, liulicugb@126.com

Dr. Xuetao Hao

China Center for Resources Satellite Data and Application (CRESDA), China, wanwei829@sina.com

Prof. Xiangjun Min

China Center for Resources Satellite Data and Application (CRESDA), China, wanwei829@sina.com

A HUB TECHNOLOGY FOR ACCESS AND ANALYSIS BIG DATA FROM CHINA'S LAND
OBSERVATION SATELLITES SYSTEM

Abstract

Processing and analysis tools for satellite remote sensing data are developed to address a specific research or management problem, but most of the tools do not get reused or shared by different researchers or organizations. In addition, data analysis usually requires intensive input data needs and demand for computational resources that are usually not available within an individual research environment. Information infrastructure is necessary means to make full use of massive data of land observation satellite to meet the needs of scientific research. To enable sharing and enhancement through collaboration, a prototype of web-base hub platform is developed for access, analyzing and visualizing the large amount of land observation satellite data achieves hosted in China Centre for Resources Satellite Data and Application (CRESDA). HUBzero platform provide collaborative and sharing environment of data processing and analysis. Hub combines the functionalities with Web 2.0 middleware, supporting scientific research, discovery, learning and collaboration. Users can not only share information and data, but also create, upload, publish and run interactive algorithms and models. The model runs in the backend container, providing high performance computing and storage resources, scientific data and collaboration network computing services, etc. Powerful middleware through the Web portal provides interactive simulation and modelling tools, which connect the user and software and data resources. HUB sharing service is based on process flow, realizing the full process sharing and knowledge exchange. This project will allow researchers to manage, analyze, visualize and share land observation satellite data for purposes ranging from predicting damaging disasters to projecting land change effects. The use cases from real applications include a precise land cover classifier model using an Active Learning strategy to select samples for labelling, Winter Weather Data Explorer, Fine-scale Land Allocation Tool, and Agriculture Data Aggregator. Despite the initial aim, this Hub may allow broader areas regarding geospatial data analysis to make use of it. We anticipate that this work will help a new way to assist researchers of remote sensing application, and provide a solution for satellite data to knowledge action.