

# Study on Data Management and Sharing Service Based Metadata and Dataset Concept

—A Case Study in Environment and Ecology

Sciences Program

Ma Liguang

Institute of Remote Sensing Application (IRSA)

Chinese Academy of Sciences (CAS)

2007-05-15

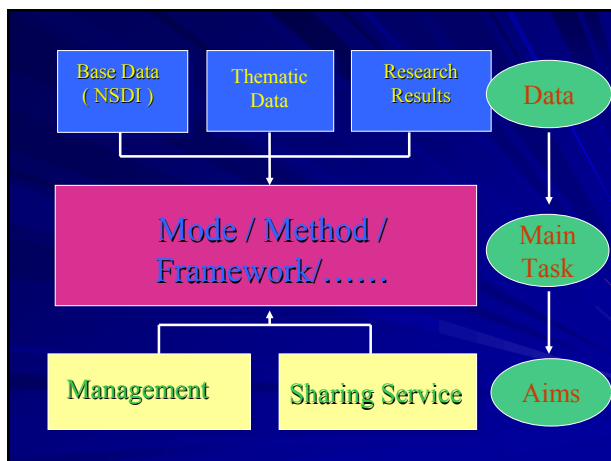
## Outline

- Introduction
- EEDMIS Background
- EEDMIS Design
- EEDMIS Implement
- Summary

What is EEDMIS ?

- Environmental and Ecology Sciences Data Management Information System ( EEDMIS )
- Dataset Management System
- Dataset (or metadata) Sharing Service Program

## 1. Introduction



## EEDMIS Demonstration

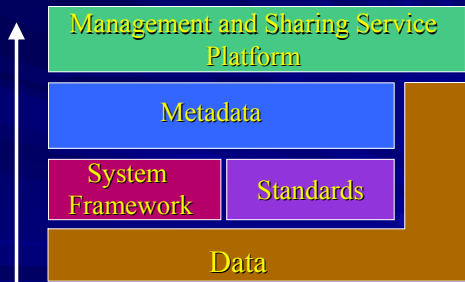


Fig 1. Demonstration

## 2. EEDMIS Background

- Hardware and Software Environment
- EEDMIS Data Status
- New Concept and Method Used

### Hardware and Software Environment

- EEDMIS Hardware Environment
  - ☞ Database server
  - ☞ Web server
  - ☞ Client PC
  - ☞ Internet
  - ☞ Local Area Network
- EEDMIS Software Environment
  - ☞ RDBMS (Oracle)
  - ☞ Spatial Data Engine □ ArcSDE □
  - ☞ System Develop Environment and Support Environment

### EEDMIS Data Status

- Multi-type, -source, -sort, -quantity, -time-domain, -subject
- Spatial Scale
- Temporal Scale
- Difficult Integration Use General Methods

### EEDMIS Data Status

Tab.1 Data Type

Data Type	Spatial Scale	Temporal Scale
Shape Files	Y	N
Coverage	Y	N
CAD File	Y	N
DEM	Y	N
Imagery	Y	Y
Documents	N	Y
Pictures	N	Y
Media Data	N	Y

### New Concept and Method Used

- Introduced Metadata Concept
  - ☞ Standards
  - ☞ Principle
- Extendable Dataset Mode
- Web Sharing Mode

## New Concept and Method

### Metadata

#### ■ Metadata Standards

- ☞ Science Data Sharing Metadata Standard (draft) — **Spatial Dataset**
- ☞ Dublin Core Metadata Element Set, Version 1.1 — **Non-spatial Dataset**

## New Concept and Method

### Metadata

#### ■ Metadata Principle

- ☞ Availability
- ☞ Accessibility
- ☞ Transferability
- ☞ Extendable

## New Concept and Method Dataset

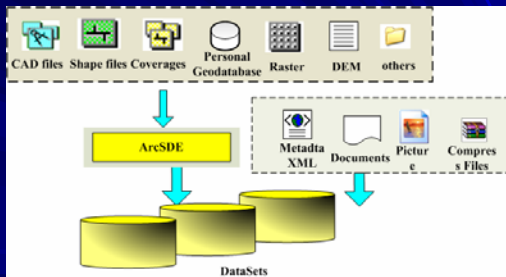


Fig 2. The basic dataset elements sketch

## New Concept and Method

### Web Sharing Mode

- ◆ Openly environment
- ◆ Common technique
- ◆ Intermedium
- ◆ Distributed-Sharing

## 3.EEDMIS Design

- Client/Server Mode
- Browser/Server Sharing Service
- Dataset Catalogue

## Client/Server Mode

- 3-Tier Framework
- COM-Based
- Component GIS Mode

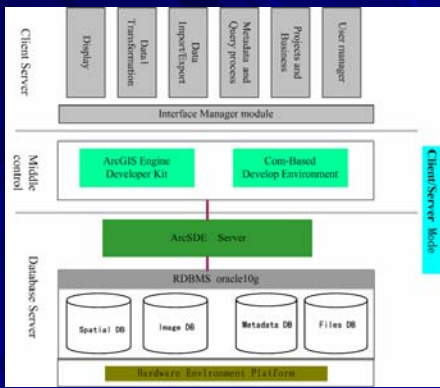


Fig 3. The Framework of the EEDMIS

## Browser/Server Sharing Service

- Web-Based Mode
- Dataset Integration Function
- Metadata Publish Service
- Dataset and Metadata Sharing Service

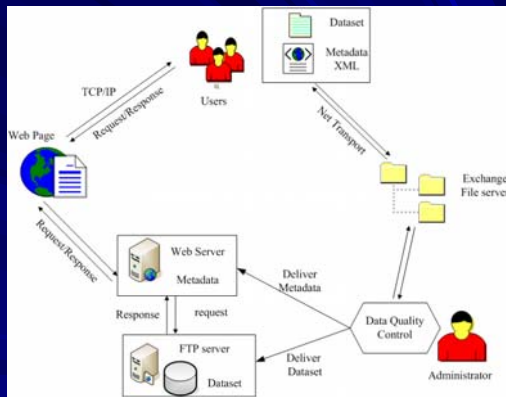


Fig 4. Web-based dataset sharing service

## Dataset Catalogue

- ◆ Dataset Index
- ◆ Multi-hierarchy Dataset Classification
- ◆ Classify Criterion and Coding Method

### ✓ Advantages

- Dataset Storage Quickly
- Dataset Search Quickly

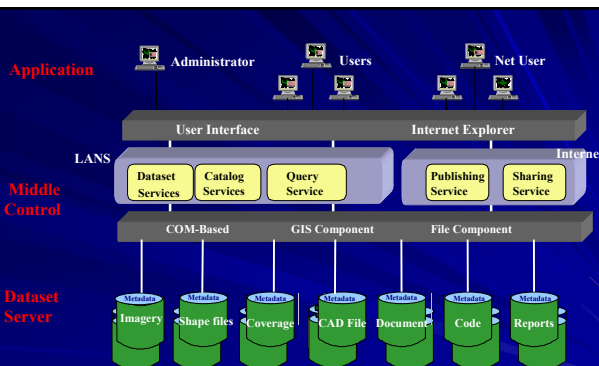


Fig 5. System structure overview

## 4.EEDMIS Implement

- Dataset Import/Export Module
- Metadata Manage and Query Module
- Metadata and Dataset Sharing Service
- Dataset Display Interface
- Project Management Module
- Classify Management Module
- System Setting Module
- Others.

# Dataset Import/Export

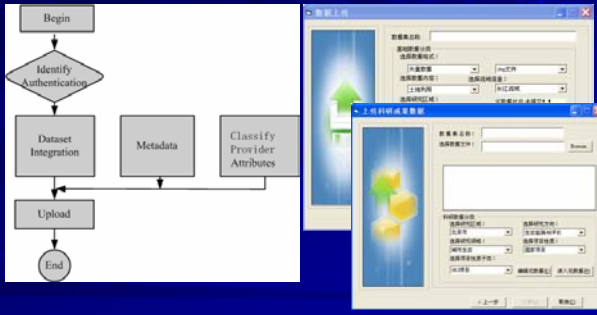


Fig 6. Dataset Import operation work flow

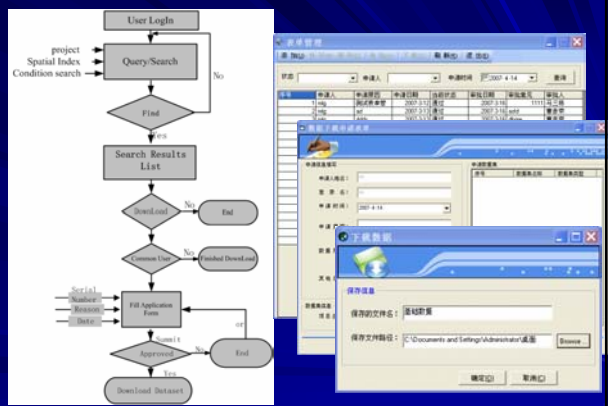


Fig 7. Dataset Export Management

# Metadata Management Module

- ◆ Metadata Edit Tool
- ◆ Query Function
- ◆ Metadata Publish Function
- ◆ Metadata Sharing Service

# Metadata Management

-Metadata Edit Tool

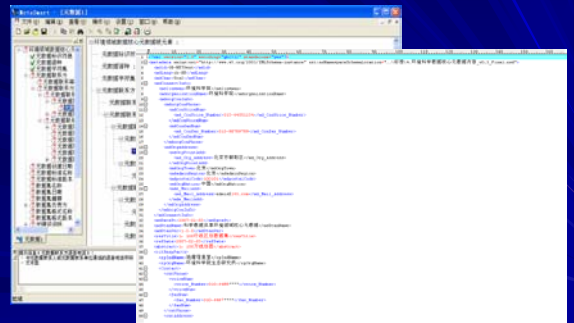


Fig 8. Metadata Edit Tool and Output XML file

# Metadata Management

-Metadata Query

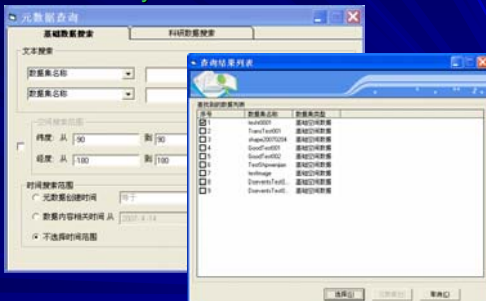


Fig 9. Metadata Query and Results List

# Metadata Management

-Metadata Sharing Service

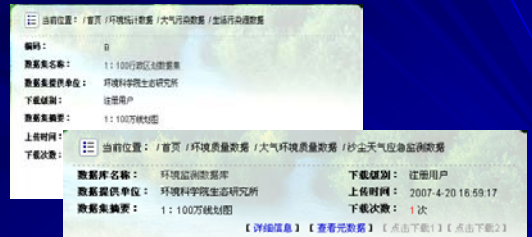


Fig 10. Metadata publish and Sharing

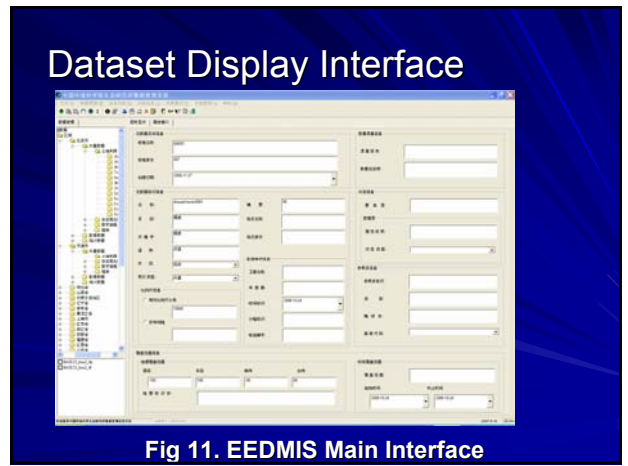
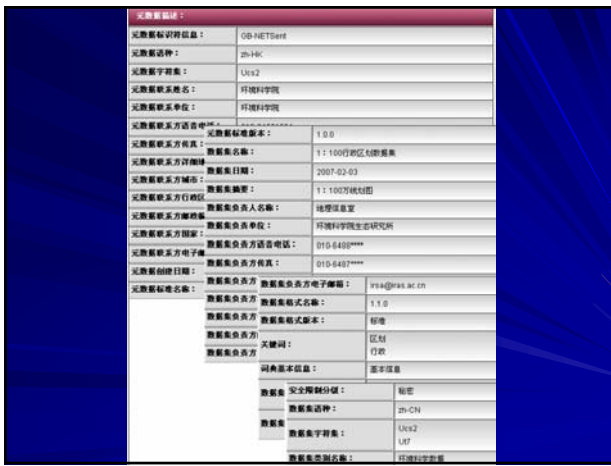


Fig 11. EEDMIS Main Interface

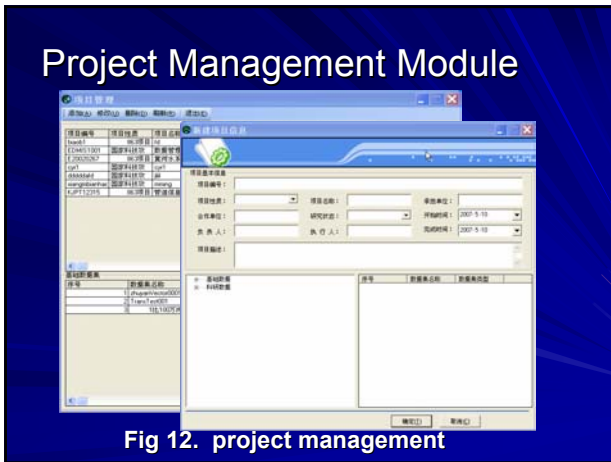


Fig 12. project management

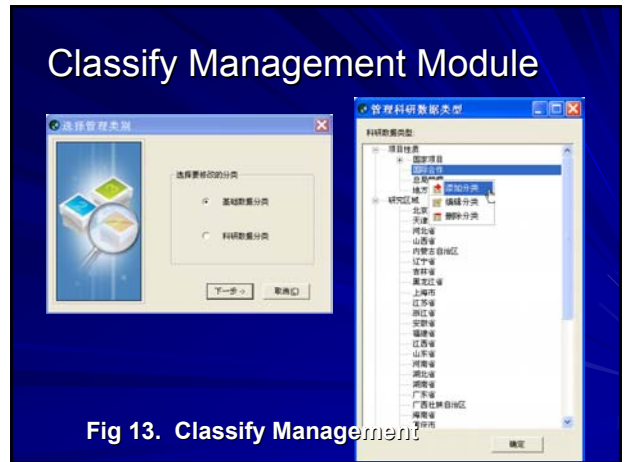


Fig 13. Classify Management

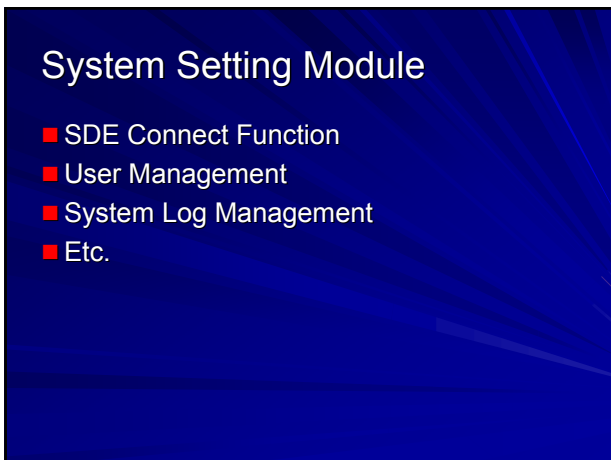


Fig 14. System Setting

## 5. Summary

- Conclusions
- Future Work

## Conclusions

- System Designed Effectively to Management the Dataset with Integrated Metadata Based on Web Mode
- Client/Server System Performance Stably
- Time and Cost Saving for User
- Simplified the Office Work Flow
- Dataset Sharing Demonstration

## Future work

- Improve the Spatial Data Service On Web (such as the map service...)
- Strengthen the Spatial Analysis and..

**Thanks for your attention!**