CEOS Water Portal
Overview and Status Update

WGISS-39
Tsukuba, Japan

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Contents

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2. Updates
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1. Overview

1.1 Concept

• CEOS Water Portal is;
  • A distributed data system component of DIAS (Data Integrated Analysis System)-Program
  • To provide “Easy to Access” service to users
  • To provide access to a whole variety of hydrological data and water relevant data scattered over the world
  • To connect the existing components like data centers, scientists and wide users.

• Multiple types of data are available such as;
  • In-situ data
  • Satellite data
  • Model output data
1. Overview

1.2 Services

1. Dataset Search
   - Category Search/Map Search
   - Connecting to 11 data centers and 2 catalog broker system

2. Dataset Access
   (Depend on the Server side function, ex. OPeNDAP server)
   - Data Subset (time, variables)
   - Data Download/Format conversion (NetCDF, ascii, GRIB (Model output only))

3. Sharing Use Case
   - Use Case registration/browsing
Visitors & Users

- New CEOS water portal site has been available from May 12th, 2015.
- Registration User is around 290.
1. Overview

1.3 Goal

Data centers (All over the world)

Data, use case, etc
Useful information

Various Users
e.x.) river administrators

Facilitate communications among communities

CEOS Water Portal

In-situ data
In-situ data
In-situ data
Satellite data

non-Water Data (DEM)

Users (researchers)

Model calculation

Model Output Data

Analysis

Register a Use case

In-situ data

Facilitate
input

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1. Overview

1.4 Data Partners

- GEMS/Water In-situ data
- NASA/ORNL IN-situ (FLUXNET) data
- NASA/JPL PO.DAAC Satellite Data
- NASA/GSFC Satellite Data
- NOAA /ESRL In-situ(GPCC) data
- NOAA /NCDC (New) In-situ data
- NCAR In-situ data
- GLOWASIS Satellite data
- GLOWASIS Model Output data
- CUAHSI HIS In-situ data
- GEO DAB (New) In-situ data
- NASA/ECHO Satellite data
- NASA/ECHO Model Output data

Users

Search
Download
Use Case
Registration/Browsing

CEOS Water Portal

MPI Model Output data

DIAS Data Integration & Analysis System

GEO GROUP ON EARTH OBSERVATIONS

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1. Overview

1.5 Available Data List (1/2)

<table>
<thead>
<tr>
<th>Data Partners</th>
<th>Data Types</th>
<th>Variables</th>
<th>Server Type</th>
<th>Server Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEOP</td>
<td>Satellite</td>
<td>PR, TMI, AMSR, AMSR-E, MODIS, GLI, SSMI, VISSR</td>
<td>Hyrax</td>
<td>University of Tokyo (Japan)</td>
</tr>
<tr>
<td></td>
<td>Model (MOLTS)</td>
<td>surface pressure, skin temperature, precipitation amount in hour, brightness temperature surface, specific humidity, u-component of wind, v-component of wind, etc</td>
<td>THREDDS</td>
<td>MPI (Germany)</td>
</tr>
<tr>
<td></td>
<td>Model (Gridded)</td>
<td>Air pressure, surface air pressure, air temperature, precipitation rate, snowfall amount, etc</td>
<td>Jblob</td>
<td>MPI (Germany)</td>
</tr>
<tr>
<td></td>
<td>In-situ</td>
<td>Surface Meteorological and Radiation Data Set Flux Data Set Soil Temperature and Soil Moisture Data Set Meteorological Tower Data Set</td>
<td>http link</td>
<td>NCAR (USA)</td>
</tr>
<tr>
<td>AWCI</td>
<td>Model (MOLTS)</td>
<td>surface pressure, skin temperature, precipitation amount in hour, brightness temperature surface, specific humidity, u-component of wind, v-component of wind, etc</td>
<td>THREDDS</td>
<td>MPI (Germany)</td>
</tr>
<tr>
<td></td>
<td>In-situ</td>
<td>Precipitation amount, River discharge, River water level, etc</td>
<td>Hyrax</td>
<td>University of Tokyo (Japan)</td>
</tr>
<tr>
<td>NASA</td>
<td>Satellite</td>
<td>Airs level 3 data</td>
<td>Hyrax</td>
<td>NASA (GSFC)</td>
</tr>
<tr>
<td>NOAA (GPCC)</td>
<td>In-situ</td>
<td>Precipitation data</td>
<td>THREDDS</td>
<td>NOAA (USA)</td>
</tr>
</tbody>
</table>
## 1. Overview
### 1.5 Available Data List (2/2)

<table>
<thead>
<tr>
<th>Data Partners</th>
<th>Data Types</th>
<th>Variables</th>
<th>Server type</th>
<th>Server Locations</th>
</tr>
</thead>
<tbody>
<tr>
<td>NASA</td>
<td>Satellite</td>
<td>GRACE Level 3 data</td>
<td>THREDDS</td>
<td>NASA/JPL(PO.DACC)</td>
</tr>
<tr>
<td>FLUXNET</td>
<td>In-situ</td>
<td>FLUX data Fluxes of carbon dioxide, water vapor, and energy exchange, etc</td>
<td>THREDDS</td>
<td>NASA (ORNL DAAC)</td>
</tr>
<tr>
<td>GEMS/Water</td>
<td>In-situ</td>
<td>Instantaneous Discharge, Dissolved Oxygen, Temperature, etc</td>
<td>WFS</td>
<td>GEMS/Water (CANADA)</td>
</tr>
<tr>
<td>GLOWASIS</td>
<td>Satellite Model(Gridded)</td>
<td>Precipitation, Air temperature</td>
<td>THREDDS</td>
<td>Deltares (Netherland)</td>
</tr>
<tr>
<td>ECHO Broker Service</td>
<td>In-situ Satellite Model</td>
<td>Various types of data via ECHO broker</td>
<td>OpenSearch</td>
<td>NASA (GSFC)</td>
</tr>
<tr>
<td>CUAHSI</td>
<td>In-situ</td>
<td>precipitation, humidity, discharge, oxygen, etc</td>
<td>REST/WaterML2, WaterOneFlow/WaterML1</td>
<td>CUAHSI (USA)</td>
</tr>
<tr>
<td>GEO DAB/GRDC</td>
<td>In-situ</td>
<td>River Discharge via GEO DAB</td>
<td>OpenSearch</td>
<td>GEO</td>
</tr>
<tr>
<td>NOAA/NCDC</td>
<td>In-situ</td>
<td>Air temperature, Precipitation, Air Pressure</td>
<td>THREDDS</td>
<td>NOAA/NCDC</td>
</tr>
</tbody>
</table>

(NEW)
2. Updates
New Architecture Development

- Purposes
  a. Less time and labors on adding data partners
  b. Integrated operation flow (search -> download)
  c. Easier operation
New System Architecture

Operation Flow

1. Dataset level catalog CMP (GI-Cat)
   - DIF

2. CWP Catalog Broker CMP (GI-Cat)
   - New Partners and updates for some datasets

3. Legacy catalog CMP
   - CEOP Gridded Model
   - CUAHSI Europe
   - GEMS/Water
   - CEOP MOLTS
   - AWCI MOLTS
   - CEOP Satellites (~2013)

Harvest (Automatic registration & updates)

Data Centers

- OPeNDAP Server
  - NASA AIRS
  - NASA GRACE
  - NOAA
  - GLOWASIS
  - FLUXNET
  - ISO19115/19139
  - AWCI In-situ

New Data Centers

- ISO-19115/19139
- OPeNDAP
- W*S
- OpenSearch, etc

User Interface

- OpenSearch
- WaterOneFlow (WOF)
- CSW (view detailed catalog)

Data Access

- HTTP files
- OPeNDAP

Subset(html) or File

File

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3. Activity plan in FY2015

a. Integrated with DIAS Catalog system
   - Develop the common dataset level catalog database
   - Use GI-cat software

b. Changing the User Authentication Function
   - SSO among DIAS

DIAS will take over the Water portal system operation at FY2016.
4. Demonstration

New CEOS Water portal