CEOS Water Portal Overview and Status Update

WGISS-38
Moscow, Russia

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Contents

1. Overview (just a reminder...)

2. Updates
   a. New Data Partners
   b. New Architecture Development

3. Future Plan

http://waterportal.ceos.org
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

2. Dataset Access
   - Data Subset (time, variables)
   - Data Visualization (GIF image)
   - Data Download/Format conversion (NetCDF, ascii, GRIB (MOLTS only))

3. Sharing Use Case
   - Use Case registration/browsing
1. Overview

1.3 Goal

Data centers (All over the world)

CEOS Water Portal

Data, use case, etc
Useful information

non-Water Data (DEM)
In-situ data
Satellite data

Various Users
e.x.) river administrators

Facilitate communications among communities

Users (researchers)

Model calculation

Register a Use case

Model Output Data

Analysis

Useful information

Input

Data, use case, etc
1. Overview

1.4 Data Partners

- **NCAR**
  - In-situ data
  - Satellite data

- **NASA/ORNL**
  - In-situ (FLUXNET) data

- **NASA/GSFC**
  - Satellite Data

- **GEMS/Water**
  - In-situ data

- **NOAA /ESRL**
  - In-situ (GPCC) data

- **NOAA /NCDC (New)**
  - In-situ data

- **NASA/JPL (PO.DAAC)**
  - In-situ data

- **GEO DAB (New)**
  - In-situ data

- **GLOWASIS**
  - Satellite data
  - Model Output data

- **CUAHSI**
  - In-situ data

- **NASA/ECHO**
  - Satellite data
  - In-situ data
  - Model Output data
### 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</td>
<td>http link</td>
<td>NCAR (USA)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Flux Data Set</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Soil Temperature and Soil Moisture Data Set</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Meteorological Tower Data Set</td>
<td></td>
<td></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>
</tbody>
</table>
### 1. Overview

#### 1.6 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>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>
<tr>
<td>NASA</td>
<td>Satellite</td>
<td>GRACE Level 3 data</td>
<td>THREDDS</td>
<td>NASA/JPL(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</td>
<td>Precipitation, Air temperature</td>
<td>THREDDS</td>
<td>Deltares (Netherlands)</td>
</tr>
<tr>
<td>ECHO Broker Service</td>
<td>Satellite Model(Grided)</td>
<td>Various types of data via ECHO broker</td>
<td>http link</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>
</tbody>
</table>
2. Updates
   a. New Data Partners

   a. NOAA/NCDC
      - Climate data (Various types of data is available)
      - We are hearing to scientists about the high priority data
        • Quality Controlled Local Climatological Data (QCLCD)
        • Cooperative Observer Network (COOP)
        • Climate Normals
        • U.S. Historical Climatology Network (USHCN)
        • Global Historical Climatology Network (GHCN)
        • Global Summary of the Day (GSOD)
        • U.S. Climate Reference Network (USCRN)
        • Global Observing Systems Information Center (GOSIC)
        • Integrated Surface Database (ISD)
        • Automated Surface Observing Systems (ASOS)
        • Automated Weather Observing System (AWOS)
        • Solar Radiation
        • National Weather Service Text Narrative and Product Archive
        • Statewide/Regional Divisional Temperature/Drought/Degree Days
        • Solar Radiation
        • National Weather Service Text Narrative and Product Archive
        • Statewide/Regional Divisional Temperature/Drought/Degree Days
        • Climate At A Glance
        • World War II Era Data
        • Hourly/15-Minute Precipitation Data and Frequency Atlas
        • Annual Climatological Summaries
2. Updates

a. New Data Partners

b. GEO DAB (Data Access Broker)
   - Connecting with GEOWOW via GEO DAB
   - Most important data is River Discharge
2. Updates
b. New Architecture Development

CEOS Water Portal (CWP) Client Component

Dataset

Granule

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

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

Broker Service & Catalog Service
(External)

CWP Catalog Management Component

Dataset level catalog CMP
(GI-Cat)
- DIF

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

Data Access

Download

Subset (html)

Catalog Interface
- OpenSearch
- WaterOneFlow (WOF)

File

Subset (html) or File

Operation Flow

1 → 2 → 3

Other than OPeNDAP

Harvest
(Automatic registration & updates)

CEOS Water Portal
CEOS (CWP)

Client Component

Users

Search

1

2

3

Data Access
3. Future Plan / Issues

a. Synergy with other component of DIAS
   - How?

b. User Authentication Function
   - SSO among DIAS

Discussion has just started.
Thank you!

CEOS WaterPortal “Ban-zai!”

ばんざい！