Data Integration and Quality Control System for CEOP

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Outline

1. Outline of DIAS System
2. Introduction of Data Upload, Quality Control, and Meta-Data Registration System

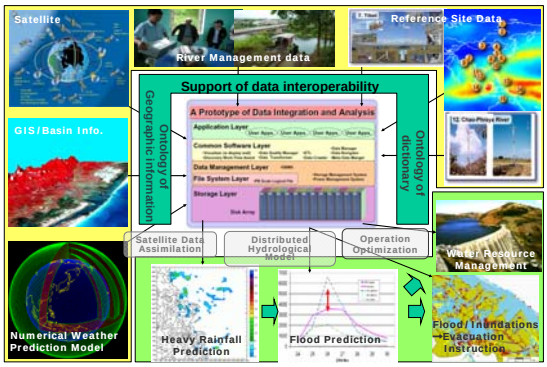
3. Introduction of CEOP Satellite Data Gateway system
4. Applications on DIAS System

What is DIAS?

- Since 2006, as part of the Earth Observation and Ocean Exploration System, which is one of five National Key Technologies defined by the 3rd Basic Program for Science and Technology of Japan.

DIAS

- Cooperation among the Observer, IT and Users -

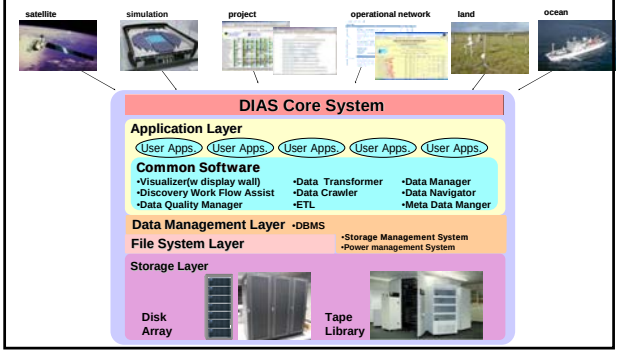


The mission of DIAS

- to coordinate the cutting-edge information science and technology and the various research fields addressing the earth environment;
- to construct data infrastructure that can integrate earth observation data, numerical model outputs, and socio-economic data effectively;
- to create knowledge enabling us to solve the earth environment problems; and
- to generate socio-economic benefits.

In detail about DIAS, Please see

Data Integration on
DIAS Core System



Storage System Structure

DIAS Storage System

- Connect to Dual 8-way Itanium2 Server
- 5-subsystem(Storage)
- Read 2.4GB/s/subsystem, total 12GB/s
- ≒ 1PB capacity HDD
- Advanced power management
  - Automatically turn off the power of idle part
  - Automatically turn on the power when accessed

New Installation around Petabyte-scale Storage at Institute of Industrial Science, U-Tokyo

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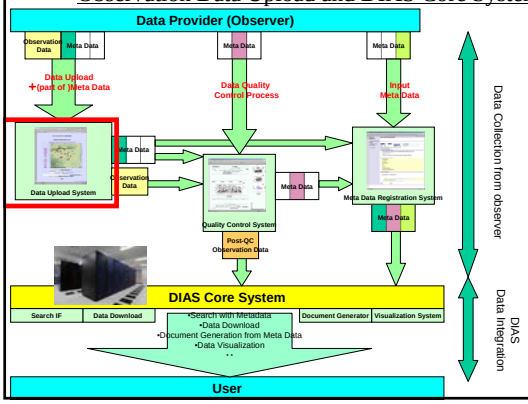
1. **Outline of DIAS System**
2. Introduction of **Data Upload, Quality Control, and Meta-Data Registration System**
3. Introduction of CEOP Satellite Data Gateway system
4. Applications on DIAS System

Observation Data Upload and DIAS Core System



Observation Data **Upload** System

Eiji Ikoma
Katsunori Tamagawa, Hiroko Kinutani,
Tetsu Ohta, Toshio Koike, Masaru Kitsuregawa

Data Upload System

- Observers can upload observation data and input some Metadata on Web Interface consisted of 4 steps.
- Easy Operation and Quick Response.
- This system has some function which reduce the complicatedness of upload process

Login Page

- Username and Password are required.
- Each observation site manager has it own (unique) username and password.

STEP1

- Observation Point(Map/List)
- Time Period
- Data Interval
- Timezone
- Description (optional)
- Num. of observed elements

STEP2

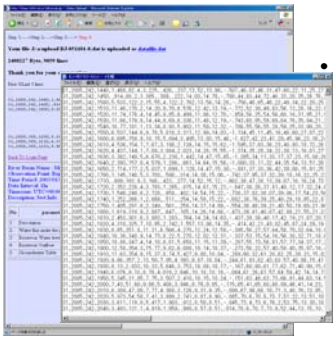
- Observation Data
  - Choose from pulldown menu
- Sensor height
- Orientation(op.)
- Unit
- Missing value
- Description(op.)

1. **Copy from No.1 to all**
2. **Unit = Input Automatically when you choose observation data**
3. **Copy from former inputted data**
4. **Modify the num of observation data**
5. **Upload from prepared csv file**

STEP3

- Upload observation Data(File).
- Confirmation of metada inputted at STEP1,2.

STEP 4

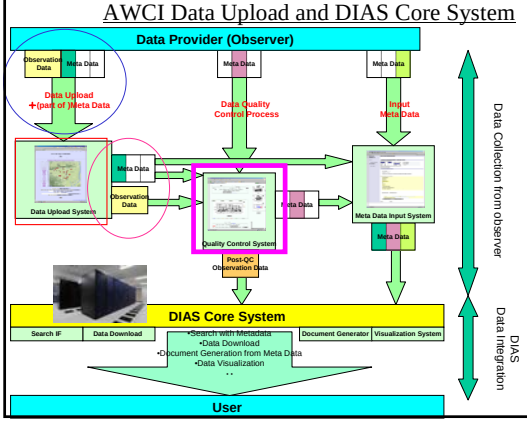


- Confirmation of
  - local path of uploaded file
  - contents of the file (first/last 3lines and all lines when you require)
  - All metadata inputted at STEP1,2,3

After STEP 4

- Our system send the confirmation message to observer by e-mail.
- Inputted metadata are stored in our Upload system --- Observer can use at next time.
- Observation data is loaded to Quality Control System

AWCI Data Upload and DIAS Core System



Data Quality Control(QC) System

Eiji Ikoma, Katsunori Tamagawa,
Tetsu Ohta, Kenji Taniguchi,
Toshio Koike, Masaru Kitsuregawa

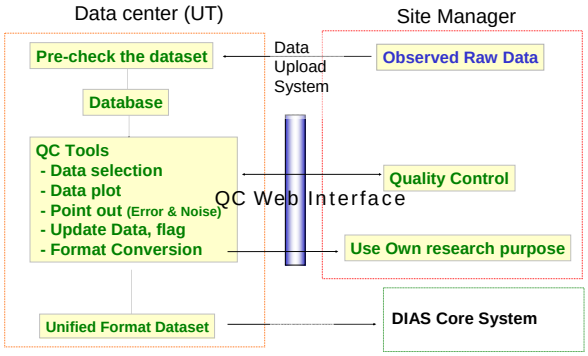
Our QC System

- First version of our QC System was developed for CEOP Data in 2004.
- Ver.1(2004-2005) for → Ver.2(2005-2006) → Ver.3(2007-)
- 13site(Ver.1)→ 25site(Ver.2)→Ver.3
- We are running QC-V3 system for CEOP Observation Data.

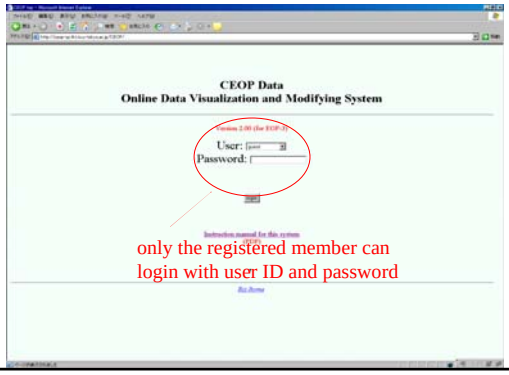
Features of our QC system

- Web-based UI (required only Web browser)
- Easy-to-use and light operation
- Data management mechanism for each user authority
- Post-QC Data download support system
- Progress Management system for Data Manager

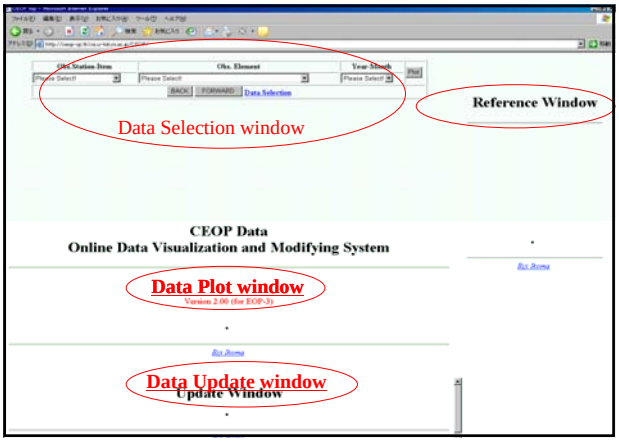
Outline of QC Process

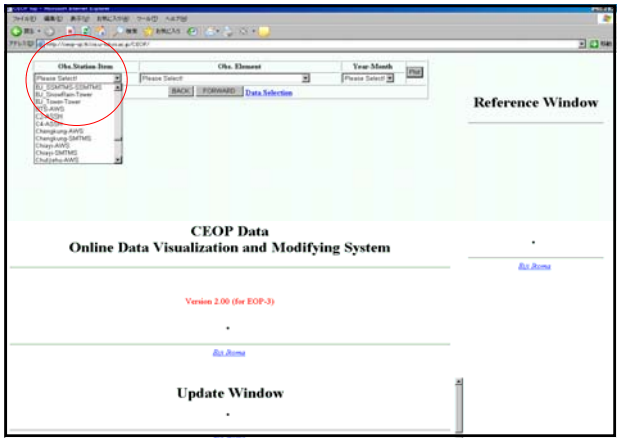


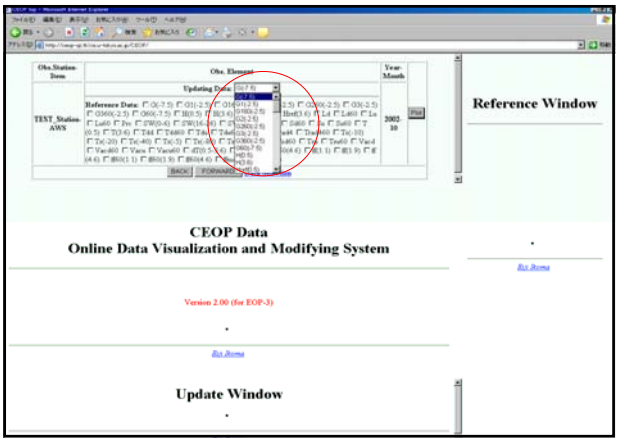
The Quality Control System

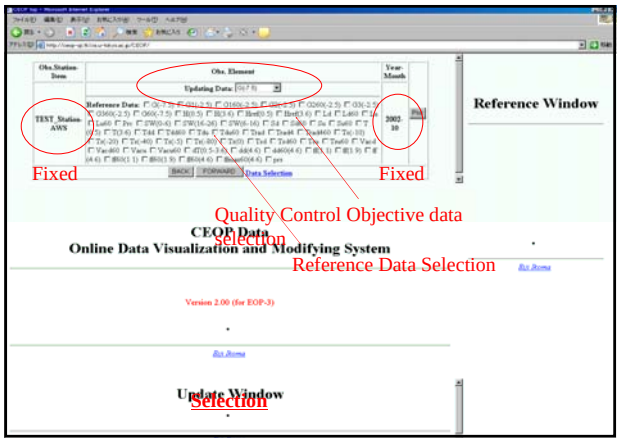


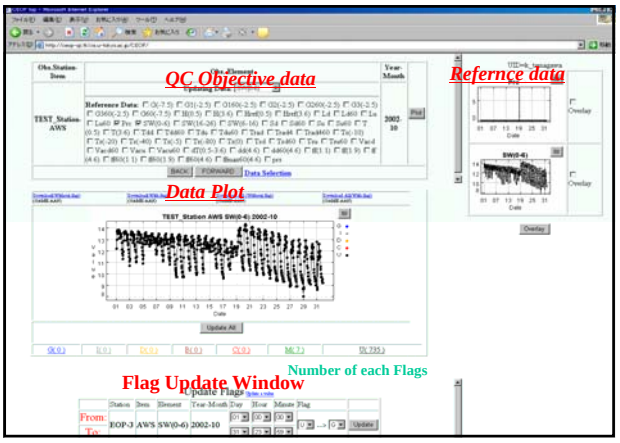
only the registered member can login with user ID and password

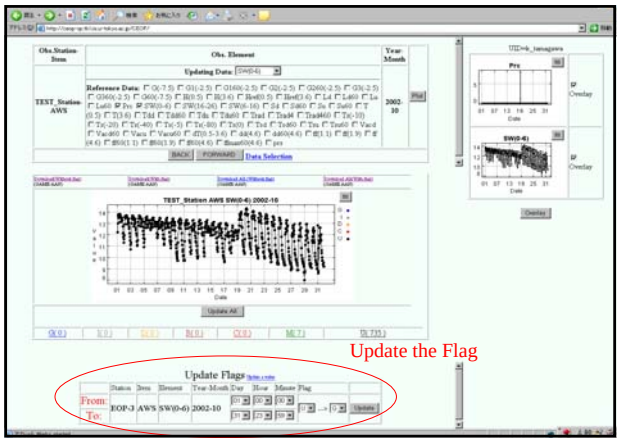


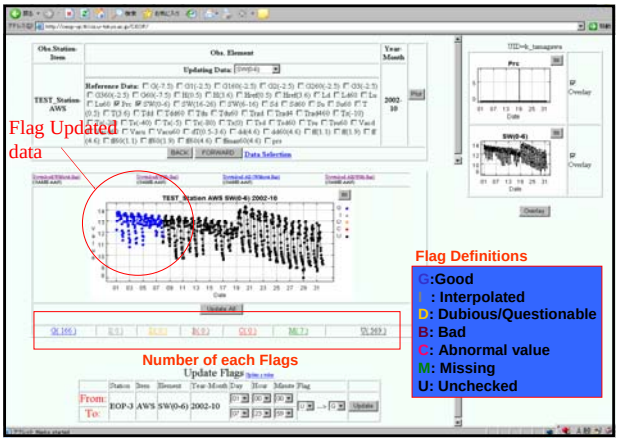


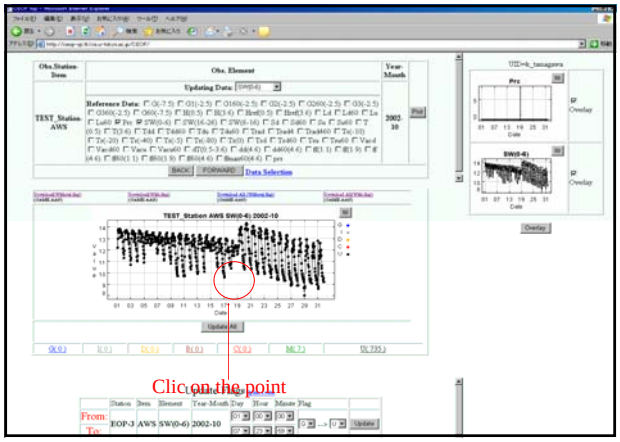


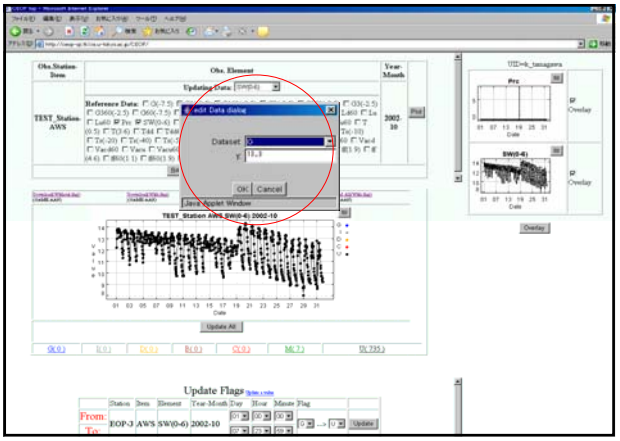


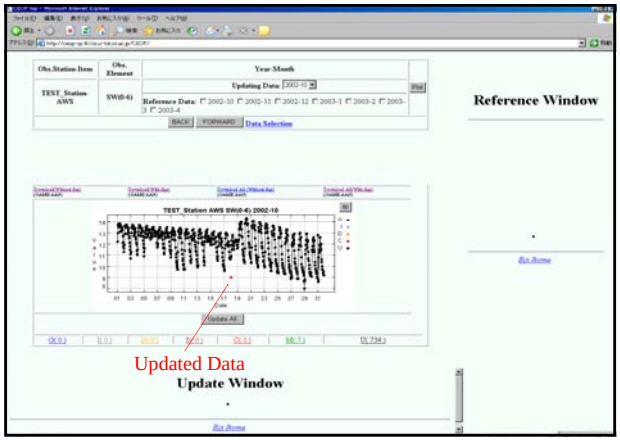

QC Objective data
Refernce data
Data Plot
Number of each Flags
Flag Update Window

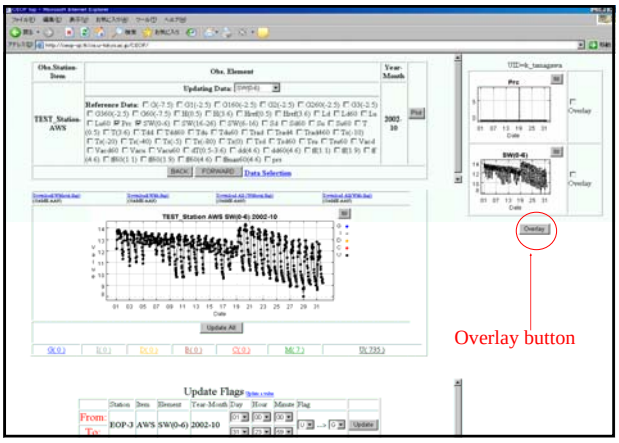

Update the Flag

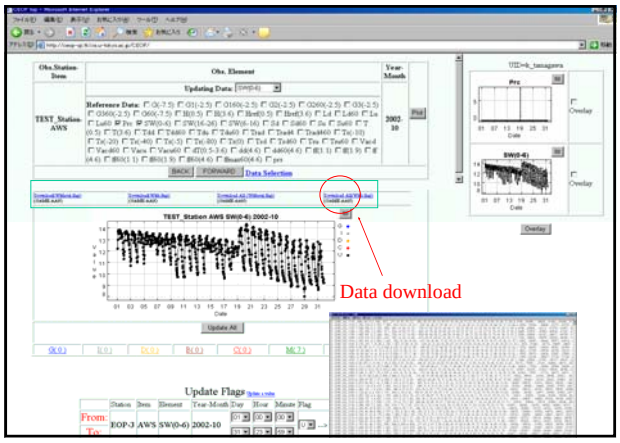

Flag Updated data
Flag Definitions
G:Good
I : Interpolated
D: Dubious/Questionable
B: Bad
C: Abnormal value
M: Missing
U: Unchecked
Number of each Flags

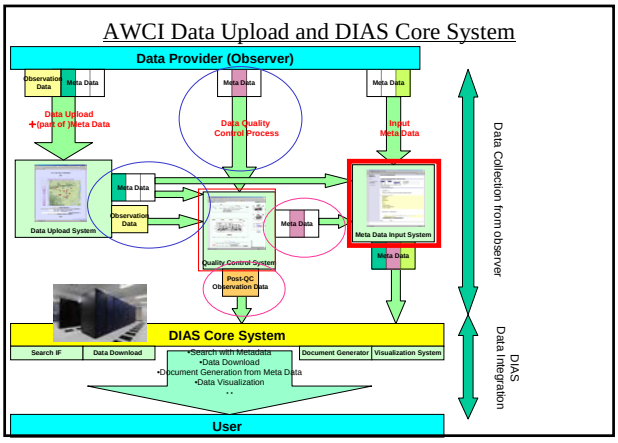

Clic on the point




Reference Window
Updated Data
Update Window







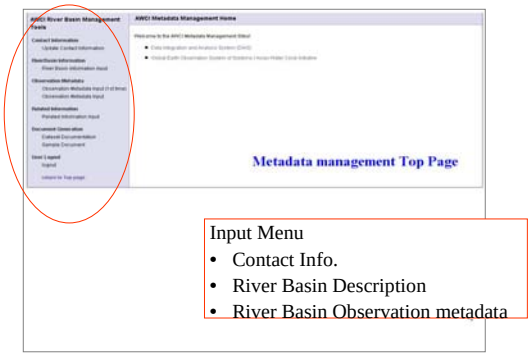
Observation Data Metadata Registration System

Hiroko Kinutani
Eiji Ikoma, Katsunori Tamagawa
Tetsu Ohta, Masaru Kitsuregawa

Metadata Input System

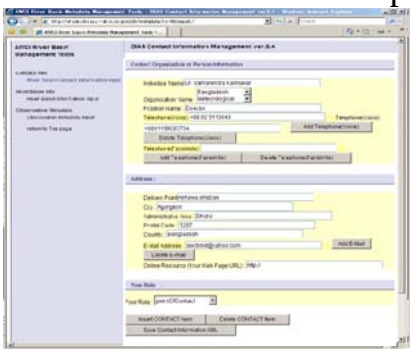
- Observers can input metadata information related to observation data on Web Interface.
- This metadata is defined as an extension of ISO19115, ISO19139 metadata standards.
- The operation on this system is much easier than other similar system.

Top Page



Input Menu
- Contact Info.
- River Basin Description
- River Basin Observation metadata

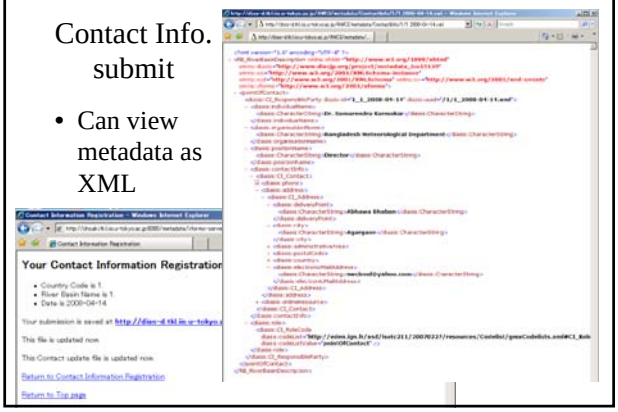
Contact Info. Input



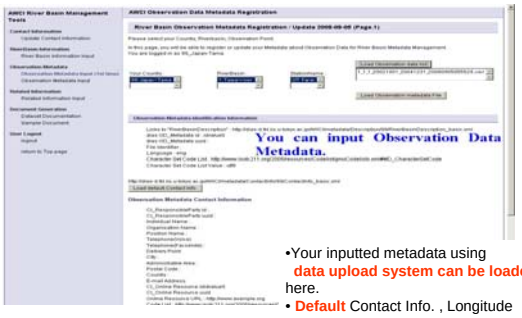
- Contact Info. is often required to input.
- Name, Address, etc.
- Once input, Use many times

Contact Info. submit

- Can view metadata as XML



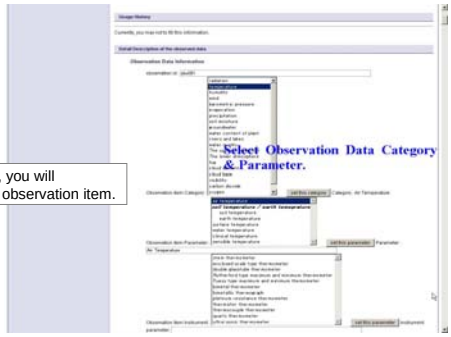
Observation metadata input(automatically)



•Your inputted metadata using **data upload system can be loaded** here.

• **Default** Contact Info. , Longitude , Latitude can be loaded **automatically**.

Observation metadata input(manually)

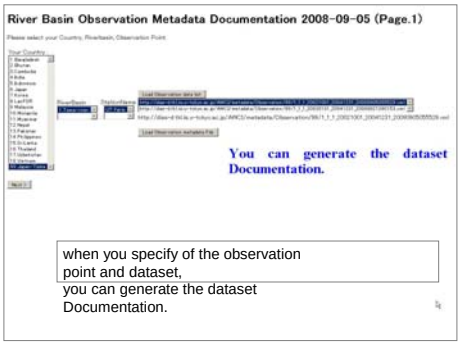


In this area, you will input about observation item.

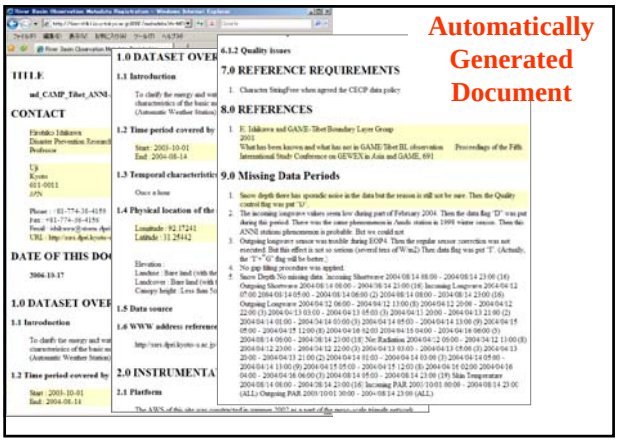
Metadata Access

When the input process is finished, the metadata XML file is stored at the displayed URL.
You can always see this file.

Document Generation



when you specify of the observation point and dataset,
you can generate the dataset Documentation.



Summary

1. Outline of DIAS System - DIAS Core system which can co-exist of Energy Saving and Peta-scale Storage Space
2. Introduction of Data Upload, Meta-Data Registration, and Quality Control System -- all systems can support observers to regist data and information to DIAS with easy/user-friendly interface..

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