Curators Meeting (last day, March 2)
and
DMCG Technical Meeting (March 3-4)

Bremen Core Repository, Bremen, Germany

MARUM Building, 2nd floor, room 2070

Final Agenda

Participants

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DMCG Meeting Chair		
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Hirano, Satoshi	MWJ	hiranos@mwj.co.jp
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Krysiak, Frank (3rd only)	Smartcube/DIS	fk@smartcube.de
Matsuda, Shigemi	CDEX/JAMSTEC	matsudas@jamstec.go.jp
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Sims, Don	USIO/TAMU	sims@iodp.tamu.edu
Takahashi, Kyoma	CDEX/JAMSTEC	kyoma@jamstec.go.jp

Introduction

The annual Curators meeting is being held in Bremen (February 28-March 2) followed by the Data Management Coordination Group (DMCG) Technical Meeting (March 3-4).

On the last day of the curators meeting (March 2), once the main agenda is completed, the DMCG will demonstrate the new Sample Materials Curation System (SMCS) currently being developed by the USIO. This is a unique opportunity to receive valuable feedback from the main users of the system. At the end of this document a more detail agenda is provided.

The DMCG meeting will follow on March 3 with a continued technical discussion about the SMCS and a discussion about the International Geo Sample Number (IGSN) system. On March 4 we will discuss metadata schema and harvesting for SEDIS Phase I and we will introduce the topic of data exchange format for all IODP data.
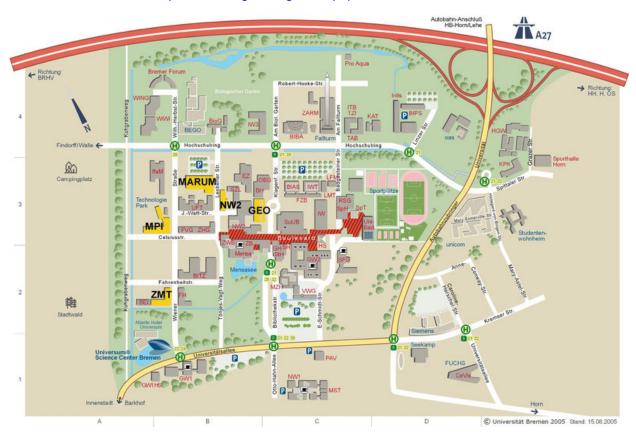
Goals

- Provide the curators with all the information they need to use the SMCS and make their inventory available for harvesting by the SMCS.
- Based on the feedback received from the curators, we will discuss what needs to be potentially modified and implemented in the SMCS.
- Provide the IOs with all the information they need to create metadata for their datasets and make their metadata available for harvesting by SEDIS Phase I.
- Discuss other data related issues:
    - o IOs Data storage and access
    - o Data exchange format

Resources

- Meeting Documents:
    - o http://campanian.iodp-mi-sapporo.org/Meetings/DMCG_Bremen_2007
- SMCS
    - o http://millstone.iodp.tamu.edu/wiki/index.php/SMCS_project
- IGSN
    - o http://www.geosamples.org/
- SEDIS
    - o http://sedis.iodp.org
- Data Exchange format
    - o OGC best practice for Observations and Measurements:
    - o http://campanian.iodp-mi-sapporo.org/Meetings/DMCG_Bremen_2007/05-087r4_Observations_and_Measurements.pdf
    - o GeoSciML:
    - o https://www.seegrid.csiro.au/twiki/bin/view/CGIModel/GeoSciML
    - o WITSML:
    - o http://www.witsml.org/

Logistics

- Meeting location
    - BCR, University of Bremen, MARUM building, Leobener Strasse
    - MARUM Building, 2nd floor, room 2070
    - From downtown take tramway line 6 towards Universität Klagenfurter Str. and get off at Univers/Zentralb or the last stop and walk to Marum. Stations are marked as H on map below. A PDF version is available here:
        - http://www.rcom.marum.de/English/How_to_find_us.html
    - Bremen's Tramway:
        - http://www.bsag.de/eng/index.php

- Weather: http://www.bbc.co.uk/weather/5day.shtml?world=4131
- Bremen: http://www.bremen-tourism.de/
- Hotel
    - Best Western Hotel Schaper-Siedenburg
    - Bahnhofstrase 8, 28195 Bremen, Germany
    - http://siedenburg.bestwestern.de/
    - Rooms have been set-aside at a special rate of EUR 60 (incl. tax and breakfast)

Agenda Schedule - Preliminary

Day 1: March 2, 2007 – Friday (when Curators meeting agenda is over – 17h00)

USIO Sampling
- JANUS sampling application (Mithal)
- LIMS/SMCS background (Blum)
- LIMS introduction (Foster)
- LIMS and sampling (Foster)

SMCS light
- SMCS overview (Foster)
- SMCS-SRM, including demo/test (Fujine)
- SMCS-SP (Foster/Blum/Fujine)
- SMCS-CI, including IGSN (Foster)

- Discussion: procedures, features, functionalities, interfaces

Day 2: March 3, 2007 – Saturday – (9h00 – 17h00)

Morning: 9h00-12h30

SMCS Under the Hood (Foster)
- SMCS (SRM, Planning, CI, data flow, structures, etc.)
- IGSN integration
- Future functionality

Results of previous day discussion
- Action items

Lunch: 12h30-13h30

In room in front of meeting room

Afternoon: 13h30-17h00

Morning session continue

Day 3: March 4, 2007 – Sunday – (9h00 – 17h00)

Morning: 9h00-12h30

Scientific Earth Drilling Information Service – SEDIS
- Introduction (Bernard Miville)
    o SEDIS Phase I, II, III
- SEDIS Phase I development (Michael Diepenbroek/Uwe Schindler)
    o Metadata schema
    o Metadata harvesting
    o Questions and discussions as needed

Lunch: 12h30-13h30

In room in front of meeting room

Afternoon: 13h30-17h00

Data storage and access
- Introduction (Bernard Miville)
    o IODP data need to be searchable not only discoverable

- IOs plan for data storage and access
    o USIO Data Storage and Access (Foster, 20 min.)
        ▪ Assumes LIMS introduction has been consumed
        ▪ Data model structure
        ▪ REST services for data extraction
        ▪ SOAP services for data loading
        ▪ Crystal web-based reporting
        ▪ INT web-based graphical reports
        ▪ Strater
    o ESO (Colin Graham, 20 min.)
    o CDEX (Matsuda Shigemi, 20 min.)
    o ICDP (Ronald Conze, 20 min.)

Data exchange format (Bernard Miville)
- Introduction
- Need for exchange format
- Advantages/Disadvantages
- Examples

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Meeting Summary

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Sample Materials Curation System Discussion

Each IO presented how they plan to handle sample curation at their respective core repositories.

ESO will continue to use CurationDIS. The USIO will continue using JANUS until the end of 2007. LIMS will be used with the first expedition of the SODV. CDEX has their own sample request and curation software as part of J-CORES and it will be used at the Kochi Core Center.

The Sample Materials Curation System (SMCS) was then presented by Paul Foster and Fujine-san from the USIO. The SMCS is being developed for IODP-MI by the USIO team at TAMU and will have three main components:

- Sample and data request
- Sample planning
- Central inventory

The sample planning has not been developed yet and is currently in the preliminary discussion phase. Requirements should be developed by involving all IOs.

Sample request

The sample request was presented and tested at the meeting. The system will be centralized with 3 levels of access or role:

- *Administrator:* This user will maintain the system and will approve new user registration. The administrator will also maintain the control vocabulary lists available in the SMCS. It has not been yet decided on who will be the main administrator of the system. It will depend on who will be hosting the system. The agreement between IODP-MI and USIO, requests that the USIO host and maintain the system. The administrator will probably be an IT staff of the USIO.
- *SMCSter:* The SMCSters are capable of assigning tasks to registered users. Typically they will be the curators.
- *General User:* A general user will be able to submit requests and view and modify their requests before they are submitted. Once submitted, the user will be able to monitor the progress of their sample requests.

The SMCS also allow several types of task that can be assigned or approved for a user:

- Edit (Editor)
- Review (Reviewer)
- Approve (Approver)

The participants were given a demonstration of the SMCS sample request module and were asked to register to do preliminary testing using the following online portal:

http://pumice.iodp.tamu.edu:8080/jetspeed/

Action Item: The participants were requested to test the sample request module and submit comments to the USIO (Paul Foster and Kazu Fujine; fujine@iodp.tamu.edu) by March 20.

Central Inventory

The central inventory (CI) will depend on sample information residing in the databases of the IODP core repositories. The CI will need to harvest or receive sample information in order to populate the CI. Each time the core repositories sample information is being updated, the CI will need to be informed that new metadata needs to be collected to update the CI.

Action Item: The USIO requested that each core repository database manager provides them with the following information by the end of March:

- Sample database structure
- How the want to notify the CI of updated or new sample information

- Time when the CI should not harvest or extract sample information from the repository databases

Each IO provided a technical contact person for the USIO team:

| Matsuda, Shigemi | CDEX/JAMSTEC | matsudas@jamstec.go.jp |
| Wallrabe-Adams, Hans-Joachim | BCR/ESO | hwallrabe@uni-bremen.de |

International Geo Sample Number

The SMCS CI will register all IODP samples being curated with an International Geo Sample Number (IGSN) from SESAR:

http://www.geosamples.org/

It was agreed that sample taken from existing materials being curated by an IODP core repository and to be given to external scientists should not be given an IGSN by the curator. It should be the responsibility of the sample requester to register the samples with an IGSN if they wish to do so.

The IODP code for the IGSN as been set as:

    SDX XXXXXX

The SD stands for Scientific Drilling (ID and OD were already taken). The third X can be any letter or number. One character will be allocated for each core repository. The last six characters can also be any letter or number and will be used to uniquely identify the samples (over 2 billion unique numbers).

Suggestion for the core repository identification:

Repository	Code
Bremen Core Repository	SDB
East Core Repository	SDE
Gulf Coast Repository	SDG
West Coast Repository	SDW
Kochi Core Center	SDK
Rutgers Core Repository	SDR

The core repositories will have a choice to assign an IGSN number using their own repository code (SDX) or leave the field empty and let the CI assign and register the IGSN.

Either way the CI will be registering the IGSN with SESAR.

It was also agreed to let the core repositories and shipboard operations decide the content of the printed label that will go on sample materials.

Publication obligation tracking

We also discussed the tracking of publications obligation and it was agreed that it should be an external system outside the sample request module. A system interacting with the sample request web service will be developed as part of SEDIS Phase II with the following features:

- Based on the date of sample request delivery, a reminder to the sample requester will be sent 30 months after by e-mail reminding them of their obligation to publish
- A reminder will also be sent after 33 months, 36 months and every 3 months until the sample requester explains why there is no publication yet or submits a citation related to the sample request
- At 36 months, an e-mail will be sent to the curators and/or the assigned IODP publication person letting them know that a sample requester has not submit a citation for their sample request hence not fulfilling their obligation.

- The system will provide a form for the sample requester for entering the citation information and link it to their own sample request
- The curators or an assigned IODP publication person will be able to search and browse the system to identify who is not respecting their publication obligation

Action item: IODP-MI will write more formal requirements to be included in the SEDIS Phase II requirements document by March 20.

Core transfer from one core repository to another

The sample request module and the central inventory will not handle the transfer of sample information from one core repository to the other. However a core repository receiving core from another repository could use the central inventory to extract the needed information and then upload it into its own repository database.

It was agreed that when core is transferred, it should come with the appropriate sample identification data either in an Excel spreadsheet or other format so that the receiving core repository can enter the sample information into their own database. The science data connected with the sample will remain with the IO who collected the science data. The original core repository database will keep the sample information into their own database so it can be linked to the science data but the location information will need to be changed to the new location or used a generic term like "other".

Scientific Earth Drilling Information Service

The Scientific Earth Drilling Information Service (SEDIS) plan was presented to the participants.

- **SEDIS Phase I:** Metadata search catalog of IODP, OPD and DSDP coring and logging Datasets stored in distributed databases:
    - JANUS
    - J-CORES
    - PANGAEA
    - LDEO Logging Database
    - NGDC
    - Others
- **SEDIS Phase II:** Full text search catalog of indexed publications related to IODP, ODP and DSDP. This will also include citations from peer-reviewed journal. An internal application will also include a tracking system for publication obligation from sample requester.
- **SEDIS Phase III:** More advanced search and data visualization tools, including data transformation web services from common data exchange format between the different distributed databases in IODP and possibly beyond.

MARUM is developing SEDIS Phase I and presented the proposed metadata profile to be used by all IOs for describing their datasets.

Metadata Profile

Metadata for SEDIS Phase I will describe each datasets (core and logging data) available for the users from the distributed databases. The metadata standard selected is:

- ISO 19115: Content standard for geographical dataset
- ISO 19139: XML Implementation for ISO 19115

A datasets could contain more than one type of scientific measurements. Here are a few examples of datasets:

- Magnetic Susceptibility from Leg 209, site 1274, Hole A
  http://iodp.tamu.edu/janusweb/physprops/msldat.cgi?leg=209&site=1274&hole=A
- Moisture and Density from Leg 195, site 1200, Hole A
  http://iodp.tamu.edu/janusweb/physprops/maddat.cgi?leg=195&site=1200&hole=A
- Geochemistry of interstitial water from Leg 181, Site 1123, Hole B
  http://doi.pangaea.de/10.1594/PANGAEA.256236

- ▪ Carbon/carbonate from Leg 48, Site 405 (Hole did not really exists, only site)
  http://www.ngdc.noaa.gov/mgg/geology/dsdp/data/48/405/carbon.txt
- ▪ APS Neutron Porosity-Main Run for Expedition 301, Site U1301, Hole B
  http://www.ldeo.columbia.edu/BRG/online4/exp301/U1301B/standard/U1301B-apsm.dat
- ▪ In some cases it might be useful to compile groups of data into higher level entities. The following example comprises bulk organic geochemistry from several holes and sites of the ACEX expedition into a data set series.
  http://doi.pangaea.de/10.1594/PANGAEA.476007

An IODP Metadata Profile Guide has been written and is available here:

http://sedis.iodp.org/documents/Guide_IODP_Metadata.doc

During the meeting MARUM described each element in the metadata profile.

Metadata harvesting

Each IO will be responsible to create metadata for each of their dataset using the IODP Metadata Profile.

SEDIS will use an incremental harvesting method to reduce the load on the individual IO's databases. MARUM suggested several methods of creating the metadata and making it available for harvesting. Detail of the preferred method is available here:

http://campanian.iodp-mi-sapporo.org/Meetings/DMCG_Bremen_2007/MARUM_SEDIS.ppt

The harvesting will use the Open Archive Initiative Protocol for Metadata Harvesting (OAI-PMH):
http://www.openarchives.org/

Action Item: Each IO are now expected to start creating metadata for their datasets using the IODP metadata profile and to ensure that harvesting can be done based on the information provided by MARUM. The IOs should have some metadata ready before the end of June so that the MARUM group can test the harvesting process. SEDIS Phase I is expected to be online sometime in August.

Here is a list of individual party responsible for the different source of metadata:

- DSDP core data: IODP-MI (from NGDC)
- DSDP logging data: USIO -LDEO
- ODP core data: USIO – TAMU
- ODP logging data: USIO – LDEO
- IODP core data: USIO-TAMU, ESO, CDEX
- IODP logging data: USIO-LDEO, ESO, CDEX

A mailing list has been created to send questions to the MARUM development team:

sedis@lists.wdc-mare.org

with the following members:

Blum, Peter	USIO/TAMU	blum@iodp.tamu.edu
Conze, Ronald	ICDP	conze@gfz-potsdam.de
Diepenbroek, Michael	MARUM	mdiepenbroek@pangaea.de
Foster, Paul	USIO/TAMU	foster@iodp.tamu.edu
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Schindler, Uwe	MARUM	uschindler@pangaea.de

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Please do not hesitate to ask questions.

Scientific and Technical Data – Digital Object Identifier (STD-DOI)

As part of the SEDIS project, we discussed using the STD-DOI to uniquely identify the IODP datasets similarly to the IGSN form sample materials and DOI for publication. This would close the loop between physical materials, scientific measurements and publication, by having unique persistent identifier than can be used to link between them.

However there were some concerns about the definition of a dataset and the possibility of a dataset being changed over time.

The International Continental Scientific Drilling Program (ICDP) and PANGAEA are both successfully using STD-DOI for all their datasets:

<div align="center">

http://www.scientificdrilling.org

http://www.pangaea.de

</div>

The USIO will not use the STD-DOI to identify their datasets because of the arbitrary definition of a dataset and the possibility of a dataset to change over time.

For now SEDIS will not assign or register STD-DOI until further discussions with the IOs.

Data Storage and Access

Each IO presented how they plan to store and make their data accessible in the future. The main reason for these presentations was to ensure that all IOs will be capable of accessing the other IOs data and that SEDIS Phase III requirements can be started using the provided information from each IO.

USIO

JANUS will remain the main database for storing the expedition data until the end of 2007. LIMS will be used for the first SODV expedition and will provide similar functionality for data searching as JANUS:

<div align="center">

http://iodp.tamu.edu/database/

http://millstone.iodp.tamu.edu/wiki/index.php/LIMS_implementation_project

</div>

The USIO logging data will continue go to the LDEO logging database:

<div align="center">

http://iodp.ldeo.columbia.edu/DATA/

</div>

A new database and new data model has been developed at LDEO for the logging data and is currently in beta testing.

ESO

The ESO data is archived at the World Data Center for Marine Environmental Sciences (WDC-MARE) hosted by PANGAEA. The PANGAEA group is developing new search capability to allow search to be done on the data itself by applying filters on depth and data values.

<div align="center">

http://iodp.wdc-mare.org/

</div>

ESO logging data is currently being stored at the LDEO logging database and in PANGAEA.

Each dataset is given a unique STD-DOI.

CDEX

DEXIS is the main database where all the drilling information and the logging data will be stored for CDEX. J-CORES database is mainly for the core data associated with both shipboard and onshore operations. DEXIS is also capable of accepting site survey data and uses GeoFrame as its main visualization tool. DEXIS requires a username and password and is currently not open to the general public:

http://sio7.jamstec.go.jp/dexis/

Within one year CDEX will confirm how the J-CORES data will be accessible to the general public. CDEX will however make all datasets publicly available by submitting metadata to SEDIS and providing direct links to the individual datasets.

ICDP

Ronald Conze from ICDP presented how data is captured, stored and access. The main capture tools used during a drilling project is the Drilling Information System (DIS), the same system that ESO uses on their expedition. During the moratorium, data is available to the project scientists using the individual project web pages:

http://www.icdp-online.de/contenido/icdp/front_content.php

After the moratorium period, datasets are stored and publicly available from the Scientific Drilling DataBase (SDDB):

http://www.scientificdrilling.org

Each dataset is given a unique STD-DOI and can be resolved from any publication that provides the identifier.

Data Exchange Format

A data exchange format could be used between the IOs to facilitate the distributed access and visualization of the data. It was agreed at the meeting that there should never be a need to transfer data from one IO database to the other. However there will be a need for each IO to access and view the data as needed. This can be easily accomplished by e-mailing files or making them available on servers or by other means especially during simultaneous expedition for the same drilling site.

SEDIS Phase III is planning to allow distributed search on the data itself, not only on the metadata.

For this to work each IO would need to have:

- a service that can receive search queries from a central search engine (SEDIS Phase III)
- The service would be tailored to the IO data model and transform the search query appropriately
- The search results at the IO database would provide an XML stream packaging the data using an IODP wide XML format that meets the search criteria.
- The XML stream would be received by SEDIS Phase III and presented to the user according to selection made by the user
- SEDIS Phase III would also have web services capable of receiving the common XML stream from the IOs database and transforming the packed XML data into any other format requested by the user. The resulting transformation could be any of the following:
    o GeoSciML
    o WITSML
    o LAS
    o CSV
    o ASCII

- o SVG
- o PDF
- o XHTML
- o STRATER
- o EXCEL
- o Other XML format or binary plot format

The transformation service will need to be portable and usable onboard during and expedition where internet might not be available.

The USIO is already capable of providing a data stream in XML. They would prefer to format the stream using an internationally recognized XML data format and not create an IODP specific format.

At the moment the best candidate for a scientific data XML format is based on the Geographic Markup Language (GML). There is a best practice document about Observations and Measurements (O&M) that has just been published:

http://campanian.iodp-mi-sapporo.org/Meetings/DMCG_Bremen_2007/05-087r4_Observations_and_Measurements.pdf

https://www.seegrid.csiro.au/twiki/bin/view/Xmml/ObservationsAndMeasurements

It is the intention of IODP to use this proposed format for all IODP data.

Action Item: IODP-MI will develop some examples of XML formatted IODP data using the proposed O&M format.