

# OOPC-X

Bob Keeley  
Geneva, 9-12 May, 2005

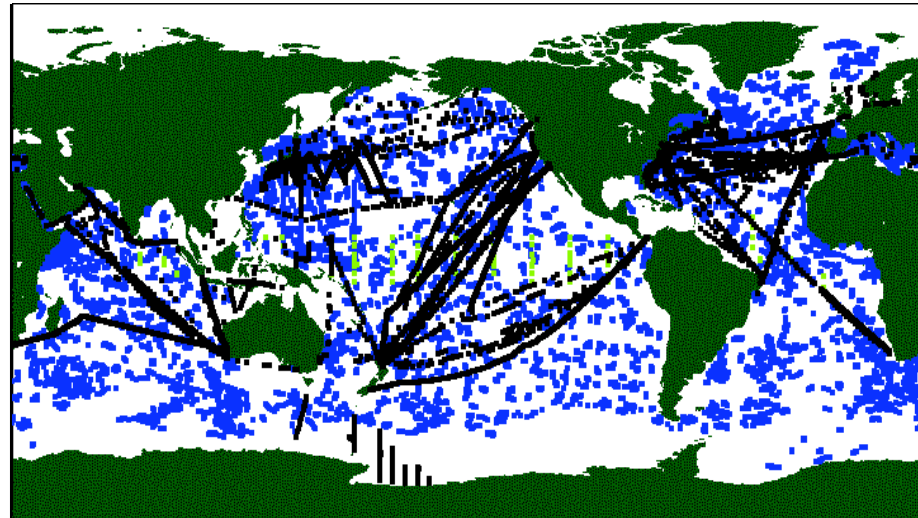
# JCOMM Metrics

# Purpose

- Simple one page display
  - to gauge how well OPA meeting goals
  - to demonstrate performance against goals
  - to show funding agencies what remains to be done
- 
- Started Q4 of 2004

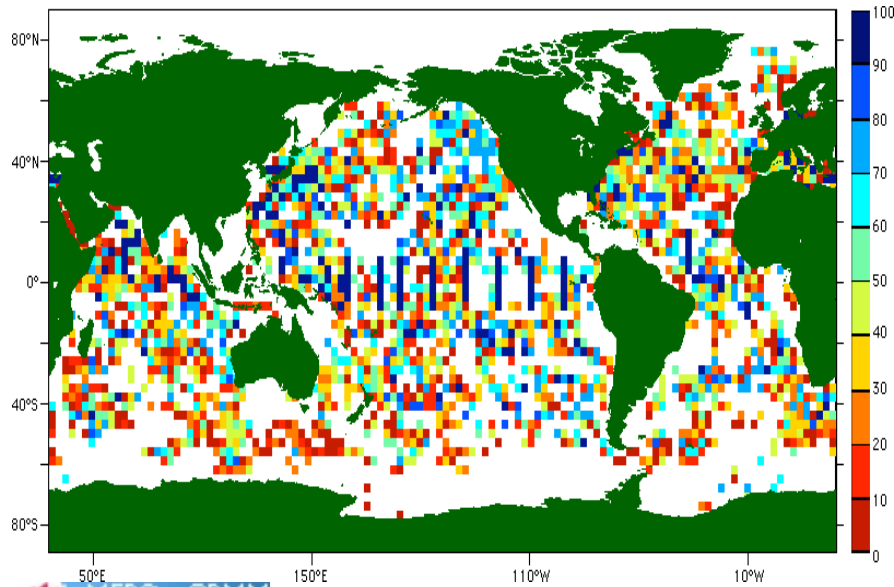
# Observing System Status: 2005, Q1 Temperature Profiles

Sampling requirements:  
1 profile  
Every 10 days  
In every 3 x 3 °

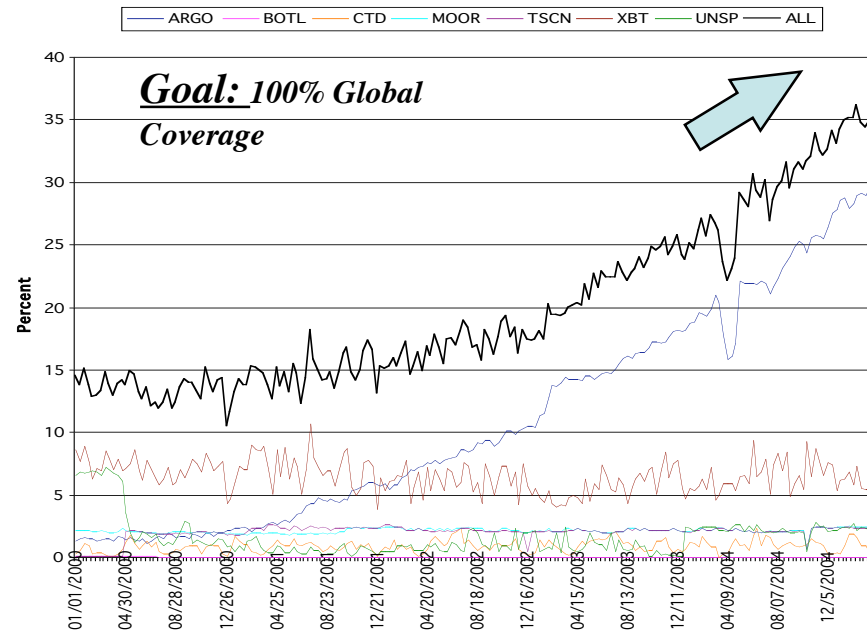


- BATHY (mostly XBTs)
- BUOY (moored and drifting)
- TESAC (mostly Argo floats)

*Requirement: All boxes blue*



MEDS - SDMM  
May, 2005



OOPC-X May, 2005

# IODE Review

# Methods

Review committee of:

Dieter Kohnke, Mark Costello, Jim Crease, Jean Folack,  
Rodney Martinez, Yutaka Michida

To examine:

- mandate and mission
- structure and operations
- data centre network
- activities and effectiveness of groups

Carried out by:

- questionnaires to member states (75 replies)
- survey of ocean data managers (73 replies)
- survey of ocean research community (936 replies)

# IODE Review-2

Seventeen recommendations

Positives:

- more streamlined structure - fewer IODE officers, abolished RNODCs
- encouraged a more distributed system
- successful development of ODINs
- reassessment of GE's
- move towards an international metadata system - reconciling MEDI, GCMD, ISO19115
- some movement on MarineXML

More work:

- towards standards (for QC and other issues)
- clarity between roles of WDCs, NODCs

# IODE Review-3

OOPC can help

- encourage closer coordination of JCOMM and IODE activities
- encourage NODC participation in science programs and researcher participation on IODE Steering Teams
- re-inforce to IODE the importance of close cooperation with researchers

# Data Systems

# Client View

Where can I send my data to ensure they are preserved?

Where can I find data of interest, and how can I get them?

- Archive - assemble and preserve data
- Discovery - find what data and information are available
- Exploration - determine what data are needed
- Delivery - acquire the data of interest

# Data Manager's Role

- Assembly of the data
- Transformation into local data structures
- Quality control
- Duplicates suppression
- Version control
- Naming standards
- Integrated data structures
- Data exposure
- Data and information delivery

# Archive data

## Tasks:

- must accept many formats
- should transcribe faithfully to a common data structure
- should apply consistent and accepted processing procedures
- must keep originals
- must migrate data and information through technology changes
- must provide access

# Discovery tools

Available tools include:

- Web pages - haphazard
- System performance indicators - too few
- Catalogues - multiple

<http://www.sea-search.net/>

Your gateway to Oceanographic and Marine Data & Information in Europe



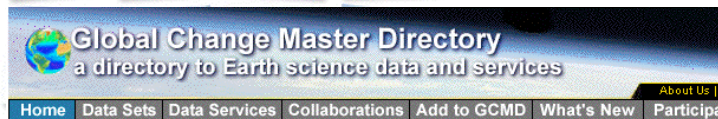
Background

Partners

Search

Contact us

Link to us!



## Find Data Sets by Topic:

<p><b>Announcement</b></p> <p>You are now viewing a new release of the Master Directory software, "MD9.4". Comments welcome! See a complete list of the new features. Thank you.</p> <p><b>What's New</b></p> <p>New Data Sets Added</p>	<b>Agriculture</b> forest science, soils ...	<b>Land Surface</b> erosion, topography ...
	<b>Atmosphere</b> precipitation, air quality ...	<b>Oceans</b> marine biology, salinity ...
	<b>Biosphere</b> vegetation, zoology ...	<b>Paleoclimate</b> ice cores, land records ...
	<b>Climate Indicators</b> air temperature, drought ...	<b>Solid Earth</b> geochemistry, seismology ...
	<b>Cryosphere</b> frozen ground, sea ice ...	<b>Spectral / Engineering</b>

SUBJECTS
Home
About MEDS
Argo
AZMP
BioChem
CLIVAR
Code List
Contaminants
Currents
Drifting Buoys
GTSP
ICES
International Links
JCOMM
NAFO
Ocean Profiles
Offshore Oil & Gas
Remote Sensing
RNODC
SOOIP
Standards
Thermosalinographs
TWL
TWL Apps

## Providing Access to Ocean Data

### About MEDS

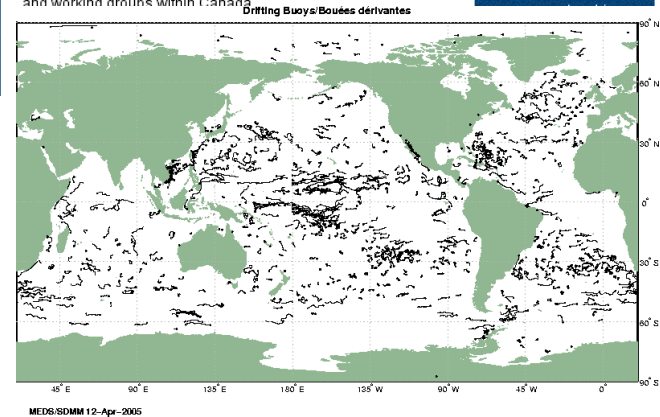
Descriptions of MEDS mandate, service standards, copyright, disclaimers and physical location.

### Data and Products

Access to oceanographic data, data products and services, as well as to other specialized products.

### National

MEDS contributions to various programmes, projects, committees and working groups within Canada

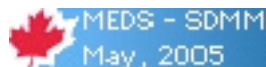


**What's new?**

JCOMM-II Technical Conference on Marine Meteorology and Oceanography for the 21st Century

**MANDATE**

MEDS' mandate is to



<http://gcmd.gsfc.nasa.gov/index.html>



OOPC-X May, 2005

# Discovery

## Greatest Value - Catalogues

- Standard, controlled content is important
- Web accessible search engines

## Still to solve:

- Too few provide content
- Automatic generation of entries



[Parameters > OCEANS](#)

Refine by Category

Please select a field

[Show All Titles for OCEANS](#) (3895)

# Exploration tools

Last temperature profile taken: 05-02-2005  
 Last salinity profile taken: 05-02-2005  
 Last oxygen profile taken: No oxygen data

## Available tools:

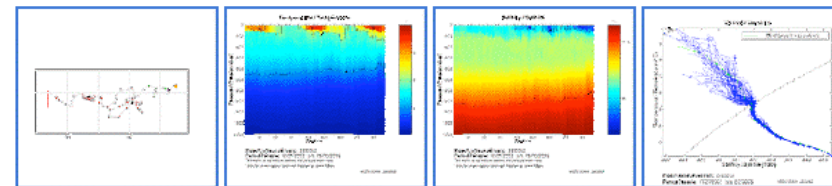
- Web pages - haphazard, lack detail
- Inventories - lack detail
- Visualizations - too few available data

[Metadata](#)

[Profile/drift data in netCDF](#)

[Surface drift data](#)

**\*\*Please note: the official versions of Argo data lie on the GDACs (Global Data Archive Centers) IFREMER and GODAE.\*\***



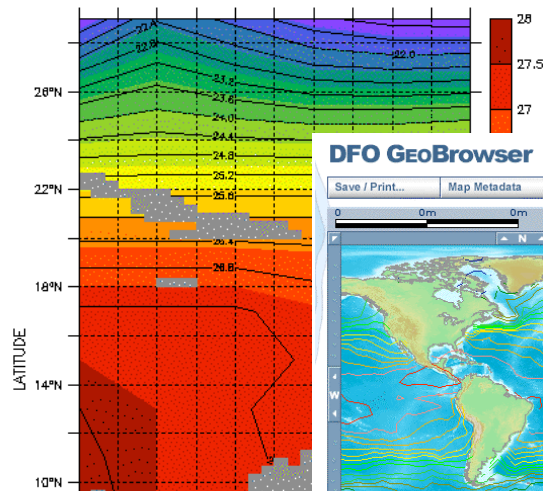
Track

T-Z

S-Z

T-S

LAS 6.5/Ferret 5.80 -- NOAA/PMEL  
 DODS URL: <http://ingrid.ldeo.columbia.edu/SOURCES/.CAC/.smoothed/.ast/>  
 TIME : 15-JAN-2005 SET: CAC/.smoothed/.ast/dods



DFO GeoBrowser

Save / Print... Map Metadata Related Docs Build New Map... Login Map Help

0 0m 0m lat 90.00, long 69.69

Choose map

- Select Category: DFO Strategic Outcome
- Select Subject: MEDS Reference Data
- Select Map: Temperature

Get Map

Data Context

Select All Refresh

Spring Temperature (at Surface)

- 8-12 C
- 12-16 C
- 16-18 C

IDENT.	TOT. OBS.	DATE FROM/DE TO/À	LATITUDE	LONGITUDE	PARAMETERS
11901	0	2005/03/10-2005/03/31	3.32S- 2.84N	42.15E- 50.14E	SST
11914	0	2005/03/01-2005/03/31	6.12S- 4.88S	46.84E- 50.79E	SST ATM
11916	0	2005/03/01-2005/03/16	6.58N- 9.95N	49.52E- 51.01E	SST ATM
11917	0	2005/03/01-2005/03/22	9.75N-12.69N	52.39E- 53.49E	SST
12506	0	2005/03/01-2005/03/07	27.32N-28.06N	35.05E- 35.72E	SST ATM
13518	0	2005/03/01-2005/03/31	23.57N-25.34N	65.76W- 63.71W	SST
13521	0	2005/03/01-2005/03/31	29.36N-29.93N	12.05W- 11.39W	SST
583		2005/03/01-2005/03/31	29.82N-30.88N	13.50W- 12.32W	SST
587		2005/03/01-2005/03/31	29.47N-30.29N	16.53W- 16.06W	SST
452		2005/03/01-2005/03/31	17.68N-19.72N	25.72W- 24.04W	SST
456		2005/03/01-2005/03/31	4.44N-10.30N	61.02W- 47.76W	SST
586		2005/03/01-2005/03/31	30.06N-32.03N	16.82W- 15.87W	SST
587		2005/03/01-2005/03/31	28.66N-29.33N	16.67W- 15.93W	SST
301		2005/03/16-2005/03/31	28.60N-29.24N	15.86W- 15.03W	SST
741		2005/03/01-2005/03/31	37.06N-39.15N	34.02W- 29.72W	SST ATM

MEDS - SDMM  
 May, 2005



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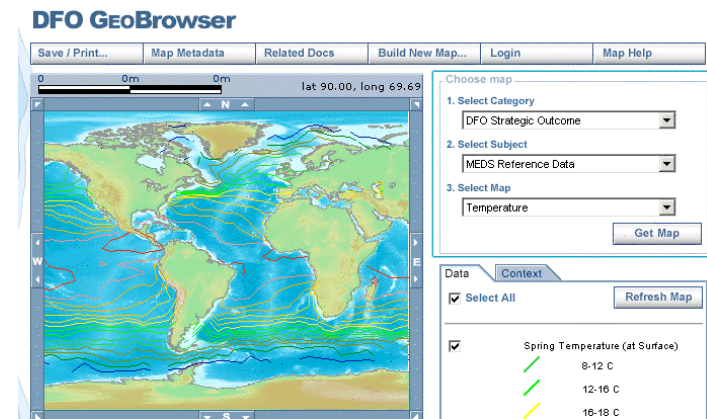
# Exploration

## Greatest Value - Visualizations

- Provide searchability to some level of detail
- Some allow viewing data directly
- There are emerging standards in OGC
- Allows combinations of disparate data

## Still to solve :

- Too many ways to see data?
- Too few data available this way
- Difficulty showing other full dimensions



<http://gp2.chs-shc.dfo-mpo.gc.ca/publicGeoBrowser/>

# Delivery tools

Available tools:

- Web pages
- inventories + ftp
- OPeNDAP, LAS
- DIGIR
- Subscription services (e.g. LDM)

## Station 8

[Field Descriptions](#)

[Back to Station List](#)

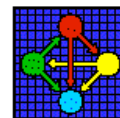
[Download the data](#)

Station Name	Station Number
COFFINS POINT	8
<b>Latitude Decimal Degrees</b>	
44.866667	
<b>Longitude Decimal Degrees</b>	
67.133333	
<b>Datum</b>	
<b>Time Zone</b>	
AST	
<b>Status</b>	
<b>MEDS Status</b>	
TN	
<b>Last Update Time</b>	
2/25/2003 11:22:01 AM	

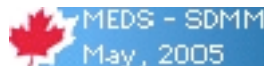
Logged in anonymously.

Path: [\[usgodae1\\_fmoc.navy.mil\]](#)[\[pub\]](#)[\[outgoing\]](#)[\[argo\]](#)[\[dac\]](#)[\[meds\]](#)

Name	Size	Kind	Last Modified
<a href="#">2900193</a>	-	Folder	Wed, 11 Feb, 2004, 0:00
<a href="#">2900455</a>	-	Folder	Thu, 28 Oct, 2004, 0:00
<a href="#">2900456</a>	-	Folder	Thu, 28 Oct, 2004, 0:00
<a href="#">3900082</a>	-	Folder	Wed, 11 Feb, 2004, 0:00
<a href="#">3900083</a>	-	Folder	Wed, 11 Feb, 2004, 0:00
<a href="#">3900084</a>	-	Folder	Wed, 11 Feb, 2004, 0:00
<a href="#">3900085</a>	-	Folder	Wed, 11 Feb, 2004, 0:00



**Unidata LDM**



OOPC-X May, 2005

# Delivery

Greatest Value - OPeNDAP, LAS, OBIS, subscription services

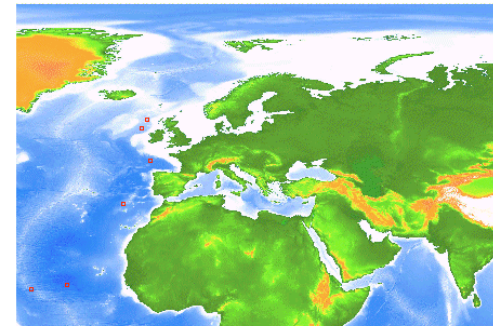
- Allows subsetting before delivery
- Some receive tools exist
- Compatible with some variety of archive formats

Still to solve:

- Improve use
- Improve handling of data and information
- Need tools to handle received data
- Computer security and firewalls

Dataset extent map

OBIS stored distribution - *Agnesia atlantica*  
(data sourced from Ifremer BIOCEAN database (Deep Sea Benthic Fauna))



Map:  Map size:  Land mask is not available

This is a clickable map, click on any point to retrieve source data within the surrounding 5 x 5 degree square.

# Quality Control Now

Present:

- Many implementations with only partial functional overlap
- Inconsistency in reporting results
- Inconsistency in reporting tests used

Address http://www.meds-sdmm.dfo-mpo.gc.ca/meds/Prog\_Int/GTSP/ QC\_e.htm

Pêches et Océans Canada Fisheries and Oceans Canada

English	Contactez-nous	Aide	Recherche	Site du Canada
Au sujet du SDMM	Données et produits	Niveau national	Niveau international	Services à la clientèle

**QUALITY CONTROL**

**International Programmes**

Argo  
GTSP

- Brochure
- Links
- Meetings
- Project Plan
- Quality Control**
- Duplicates

- [GTSP Real-time Quality Control Manual \(IOC Manuals and Guides #22\)](#)
- [AOML Manual](#)
- [CSIRO "Cookbook"](#)

# Quality Control

## Stage 1: Location and Identification Tests

- 1.1 [Platform Identification](#) (1)
- 1.2 [Impossible Date/Time](#) (2)
- 1.3 [Impossible Location](#) (4)
- 1.4 [Position on Land](#) (8)
- 1.5 [Impossible Speed](#) (16)
- 1.6 [Impossible Sounding](#) (32)

## Stage 2: Profile Tests

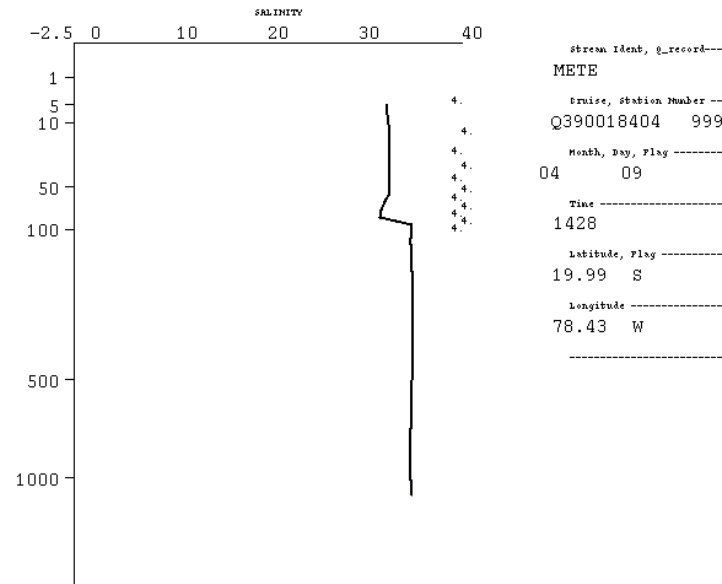
- 2.1 [Global Impossible Parameter Values](#) (64)
- 2.2 [Regional Impossible Parameter Values](#) (128)
- 2.3 [Increasing Depth](#) (256)
- 2.4 [Profile Envelop](#) (512)
- 2.5 [Constant Profile](#) (1024)
- 2.6 [Freezing Point](#) (2048)
- 2.7 [Spike](#) (4096)
- 2.8 [Top and Bottom Spike](#) (8192)
- 2.9 [Gradient](#) (16384)
- 2.10 [Density Inversion](#) (32768)
- 2.11 [Bottom](#) (8388608)
- 2.12 [Temperature Inversion](#) (16777216)

## Stage 3: Climatology Tests

- 3.1 [Levitus Seasonal Statistics](#) (65536)
- 3.2 [Emery and Dewar Climatology](#) (131072)
- 3.3 [Asheville Climatology](#) (262144)
- 3.4 [Levitus Monthly Climatology](#) (524288)

## Still to solve:

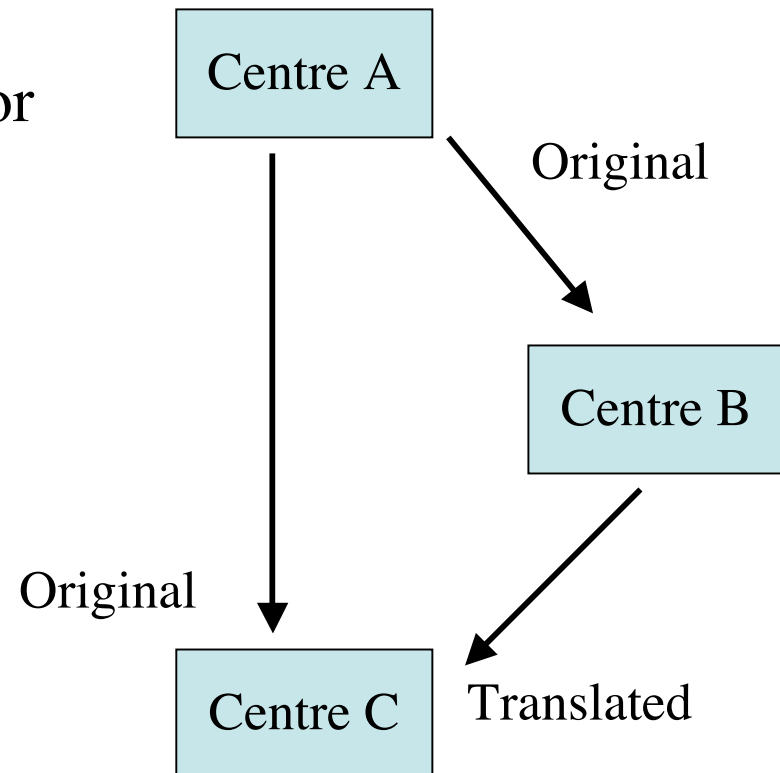
- Agree on standard procedures to be applied at minimum
- Allow for new procedures to be added
- Agree on flags
- Agree on how to report QC results
- Ensure scientific QC is included
- Ensure response to feedback on problems detected



# Duplicates Suppression Now

Present:

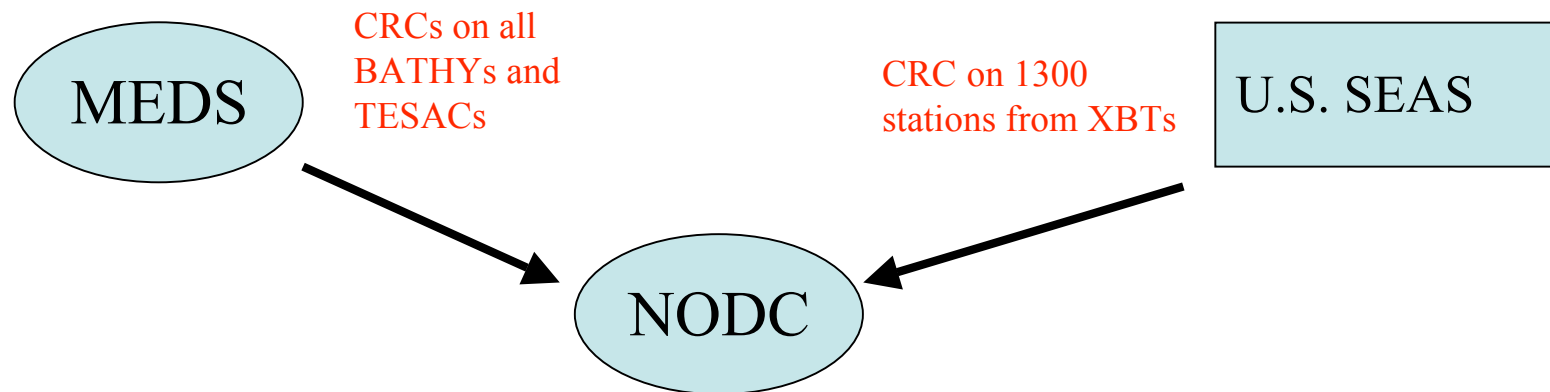
- Data exchange creates exact or near-exact duplicates
- Real-time and delayed mode exchange creates duplicates
- Data centres receive multiple copies over time



# Duplicates Suppression

Still to solve:

- Exchange data only to protect data from loss
- OR when required by a client
- OR to support another data centre
- Protect all data that comes to you.
- Attach unique tag to data soon after collection

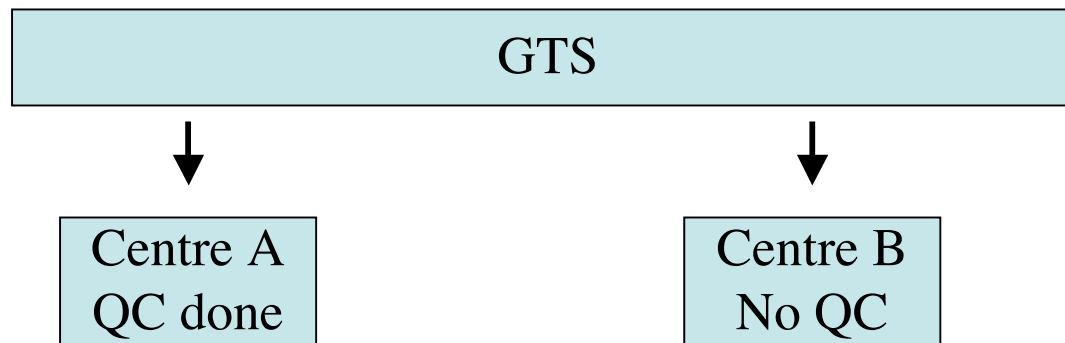


**The Unique tagging is more reliable than the older duplicates checking software, but there are still some “wrinkles” to be worked out. France and Australia will be implementing the same scheme. We continue to monitor.**

# Version Control Now

Present:

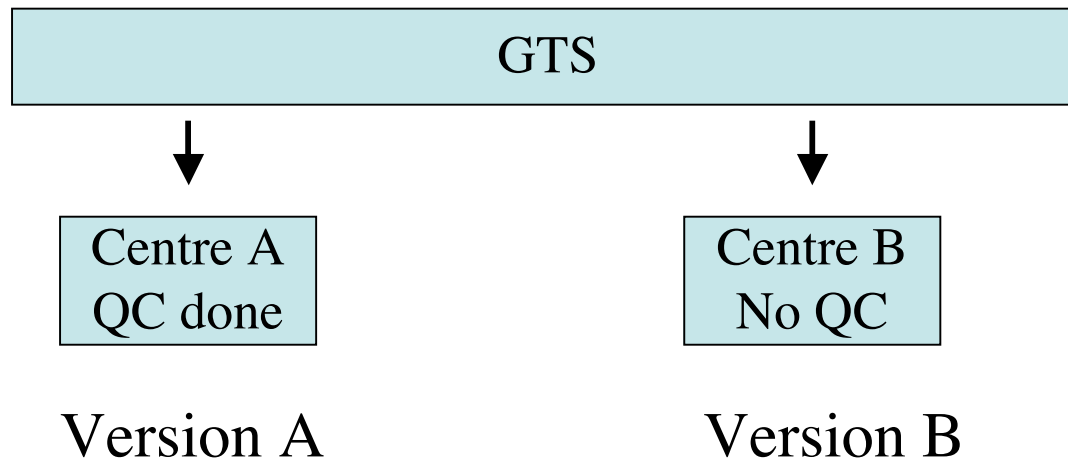
- QC and processing creates versions of data
- Clients need to know to allow selection of best data
- No standard way to record this information



# Version Control

Still to solve:

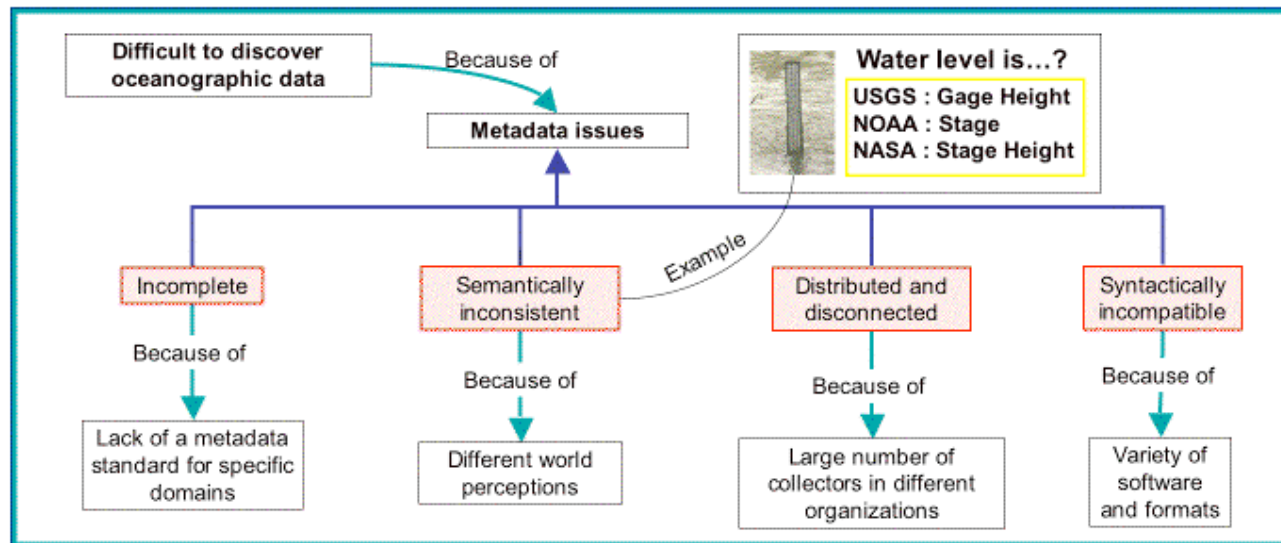
- Agree on classification of data versions
- Agree on how to document these versions
- Provide information to clients.



# Naming Standards

Present:

- Variables get different “names” at different places
- Possible that different variables get the same name
- Creates confusion on data delivery
- No standards



<http://marinemetadata.org/>

# Naming Standards

Still to solve:

- Participation in data dictionary
- Mapping from one vocabulary to another
- Use of a common vocabulary

Search Results:

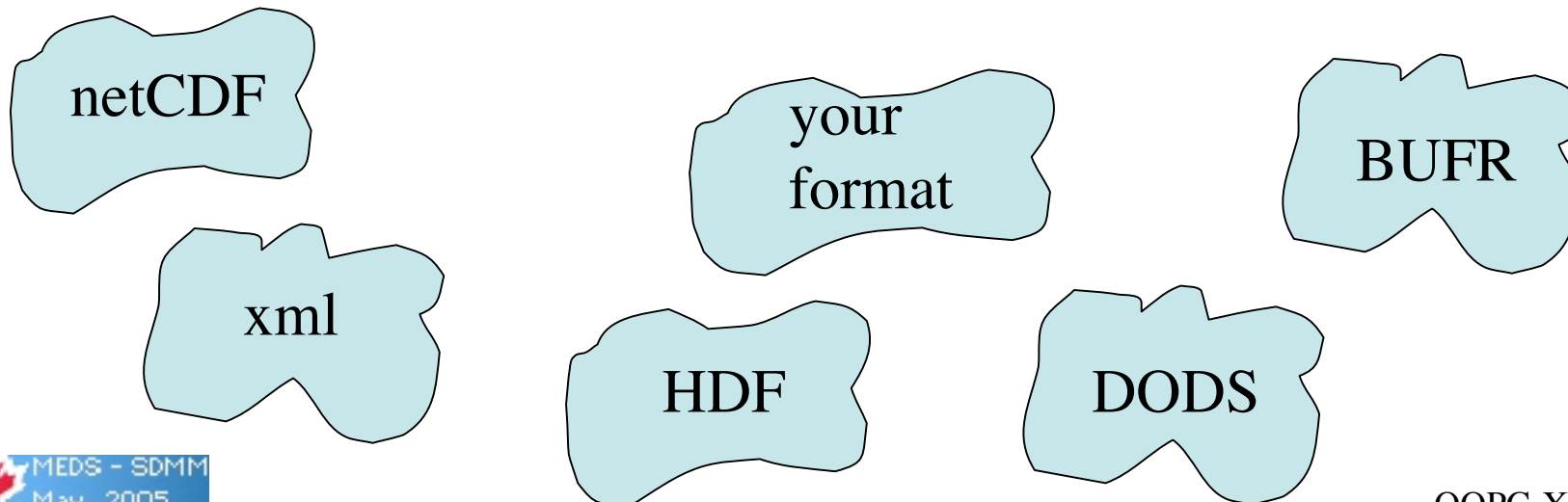
Code	Owner	Meaning	Units (Symbols)	Units (Name)	Category	Status	Updated	Edit	Adopt
TEMP	MEDS	Sea temperature	°C	degree Celsius	Physical Oceanography	Active	2/24/2004 11:54:54 AM	E	
TEMP	BIO	Sea Temperature	°C	degree Celsius	Physical Oceanography	Active	3/4/2004 10:31:20 AM	E	
TEMP	IML	Sea Temperature (IPTS-68)	°C	degree Celsius	Physical Oceanography	Active	3/4/2004 10:31:20 AM	E	
TEMP	NODC	Temperature	°C	degree Celsius	Physical Oceanography	Active	1/28/2005 7:03:06 AM	E	
TEMPAPRT	BODC	Temperature of the water column by AWQMS Quanta platinum resistance thermometer	degC	Degrees Centigrade	Sea temperature and salinity	Active	7/6/2004 3:04:00 PM	E	A

[http://www.meds-sdmm.dfo-mpo.gc.ca/meds/About\\_MEDS/standards/login\\_e.asp](http://www.meds-sdmm.dfo-mpo.gc.ca/meds/About_MEDS/standards/login_e.asp)

# Integrated Data Structures - Now

Present:

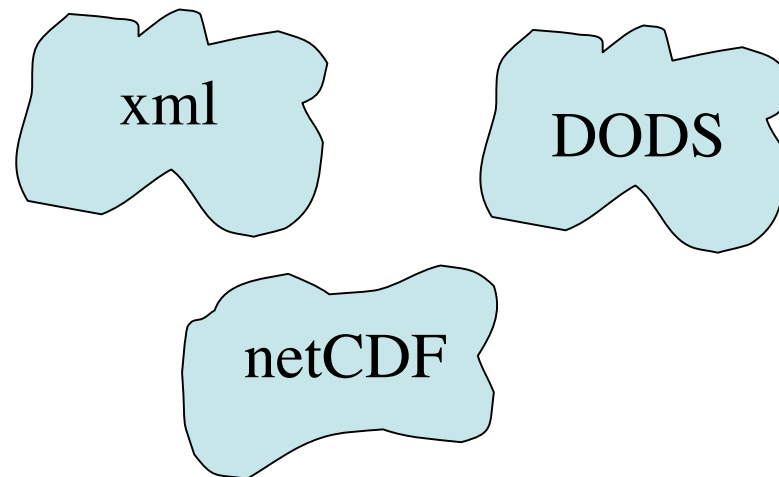
- Data formats are many and created as required
- Same data can appear in different forms with varied content
- No “universal” data structure
- No convergence to a few data structures
- Impedes combining different data in cross discipline analyses



# Integrating Data Structures

Still to solve:

- Need closer cooperation between different programs
- This will foster a convergence of data structures



# Recent Initiatives

- Need for a more comprehensive approach is widely recognized
- U.S. has DMAC, EU has SeaDataNet, JCOMM has ETDMP
- All these share a common goal, but implementation will vary
- We should welcome these and join the one that meets our need
- We should look to coalesce these solutions in future
- Need cross communication on developments

# What can OOPC do?

- Continue to voice its desire for convergence to a few solutions
- Continue to encourage use of standards
- Remind groups like JCOMM and IODE of their responsibility to find solutions
- Push for improved data system performance by highlighting practices they like and dislike



# Summary

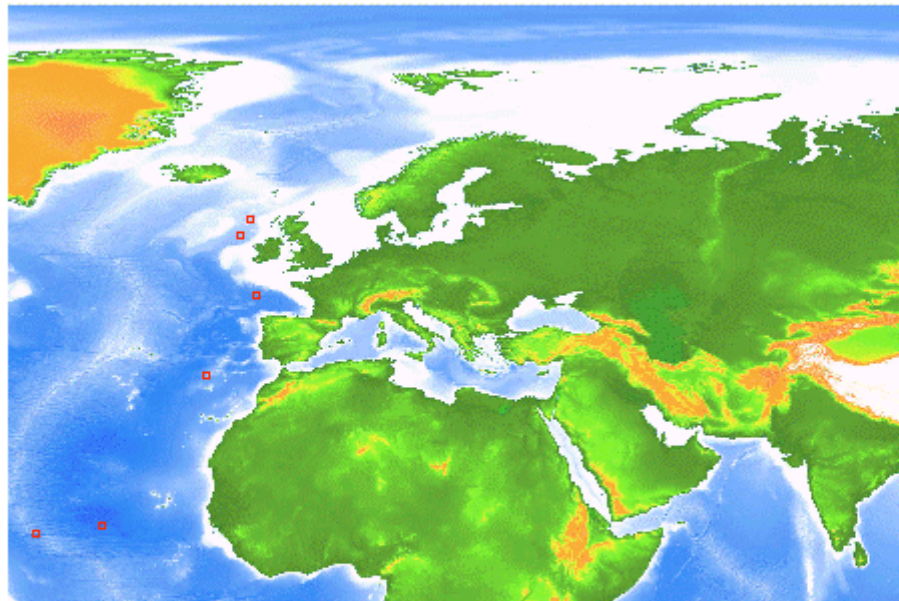
Technologies	Discovery	Exploration	Delivery
Metrics	█		
web pages		█	█
FGDC, ISO19115, GCMD	█		
OGC		█	
Inventories		█	
OPeNDAP			█
LAS			█
Data dictionary			█
ftp			█
Duplicates suppression			█
QC routines			█
Distributed archives			█
Version control			█
Subscription service			█
Integrating data structures			█

# OBIS

## Dataset extent map

### OBIS stored distribution - *Agnesia atlantica*

(data sourced from Ifremer BIOCEAN database (Deep Sea Benthic Fauna))



Map:  Map size:  Land mask is not available

This is a clickable map, click on any point to retrieve source data within the surrounding 5 x 5 degree square.

# OBIS

## Search result

You searched for distribution of *Ceratoscopelus townsendi*  
Your search returns 2 records

### Data Downloading Service:

[View results as a text file](#)

[View results as a table in HTML format](#)

### Mapping Service:

1. Dynamic Mapper from Biogeoinformatics of Hexacorals [KGSMapper](#)

2. C-square Mapper from CSIRO Research [Quick map](#)

3. Easy Netviewer (beta test) [Netviewer](#)

### Modeling Service:

WhyWhere from San Diego Supercomputer Center [Submit](#)

The data are from the following sources:

[FishBase](#)



# OBIS

index	dateLast Modified	Institution Code	Collection Code	Scientific Name	Catalog Number	basisOf Record	genus	species	Scientific Name Author	latitude	longitude	sLatitude	Digir Name
1	4/10/2000 0:00	BMNH	489300	Ceratoscopelus townsendi	BMNH 1948.5.14.581	S	Ceratoscopelus	townsendi	(Eigenmann & Eigenmann, 1889)	14.45417	-30.0375	27.25	fishbase
2	4/10/2000 0:00	BMNH	488732	Ceratoscopelus townsendi	BMNH 1948.5.14.609	S	Ceratoscopelus	townsendi	(Eigenmann & Eigenmann, 1889)	12.3625	-30.125	21.75	fishbase