



Using Standards to Achieve Data Interoperability

Metadata is the



about your data!

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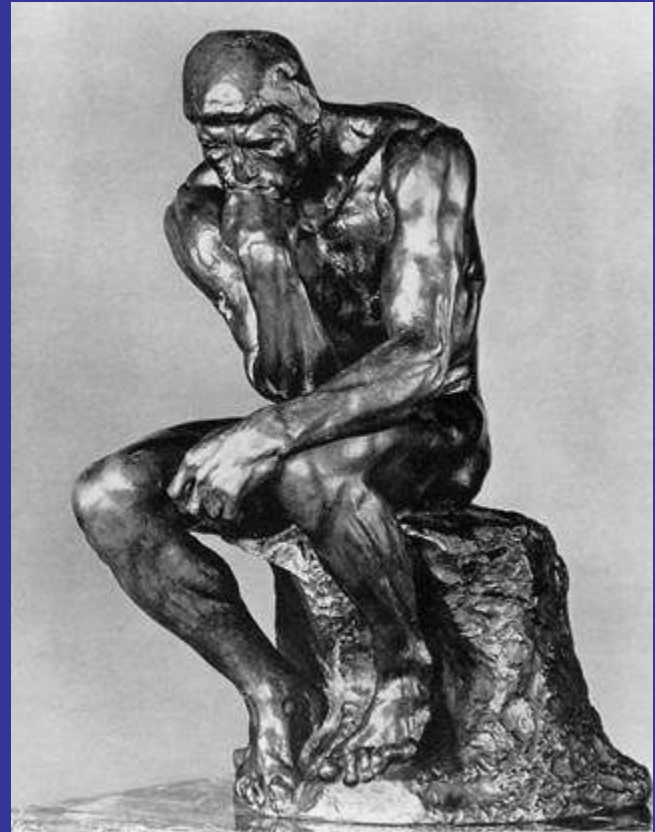
Fisheries and Oceans
Canada

Pêches et Océans
Canada

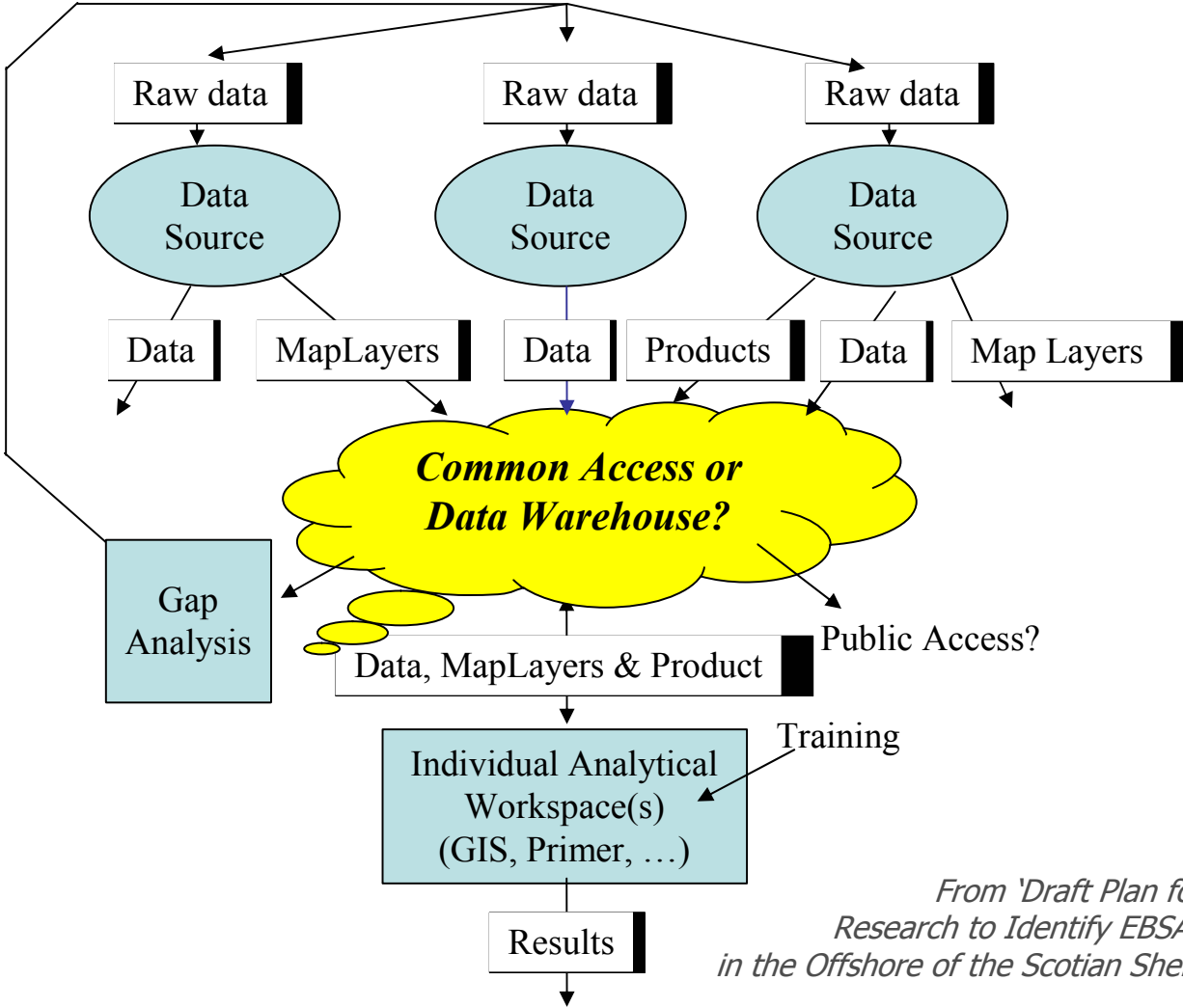
Need...

‘... all available information (including local ecological knowledge) on distribution and abundance of organisms, oceanographic data and information on habitat and bottom types ... gathered into or made accessible through a single source ...’

From ‘Draft Proposal for Research to Identify EBSAs in the Offshore of the Scotian Shelf’



Common Access or Data Warehouse?



From 'Draft Plan for Research to Identify EBSAs in the Offshore of the Scotian Shelf'

Interoperability ...

- Consistent and reliable use of data from disparate and often remote systems.
- Results from community wide acceptance of data publishing standards.
- Standards based systems may be difficult to implement, but they do give built-in interoperability.

Benefits ...

- Facilitate data access, integration, analysis, application.
- Collect data once, closest to source.
- Dynamic mapping (req. GIS tools).
- Efficiency and cost effectiveness through improved geomatics coordination in policy-making and governance.

No Brainer???

Issues ...

- **Data Rescue**: May be difficult/combersome. Is backward compatibility inviolable?
- **Dialects**: Structure may suit one data type, not another. Compatibility too onerous?
- **Model "Data"**: Storage of high-level info on grid construction (esp. "unstructured" grids)?
- **Differing Ontologies and Nomenclature**: Complicates establishment of equivalence. No standards for certain variables. Linking to external vocabularies is risky.

Example ...



BIO

Prototype Lab

External feeds
GFDL
COAMPS
NAM
others

All data
for archive

In situ data
MM5

TAMU

SWAN
WAM

LSU

All data
for archive

Translated
products

UAH

ANA
GFDL
CH3D

UF

Windgen

UM

SCOOP net

GoMOOS

ELCIRC

VIMS

UNC

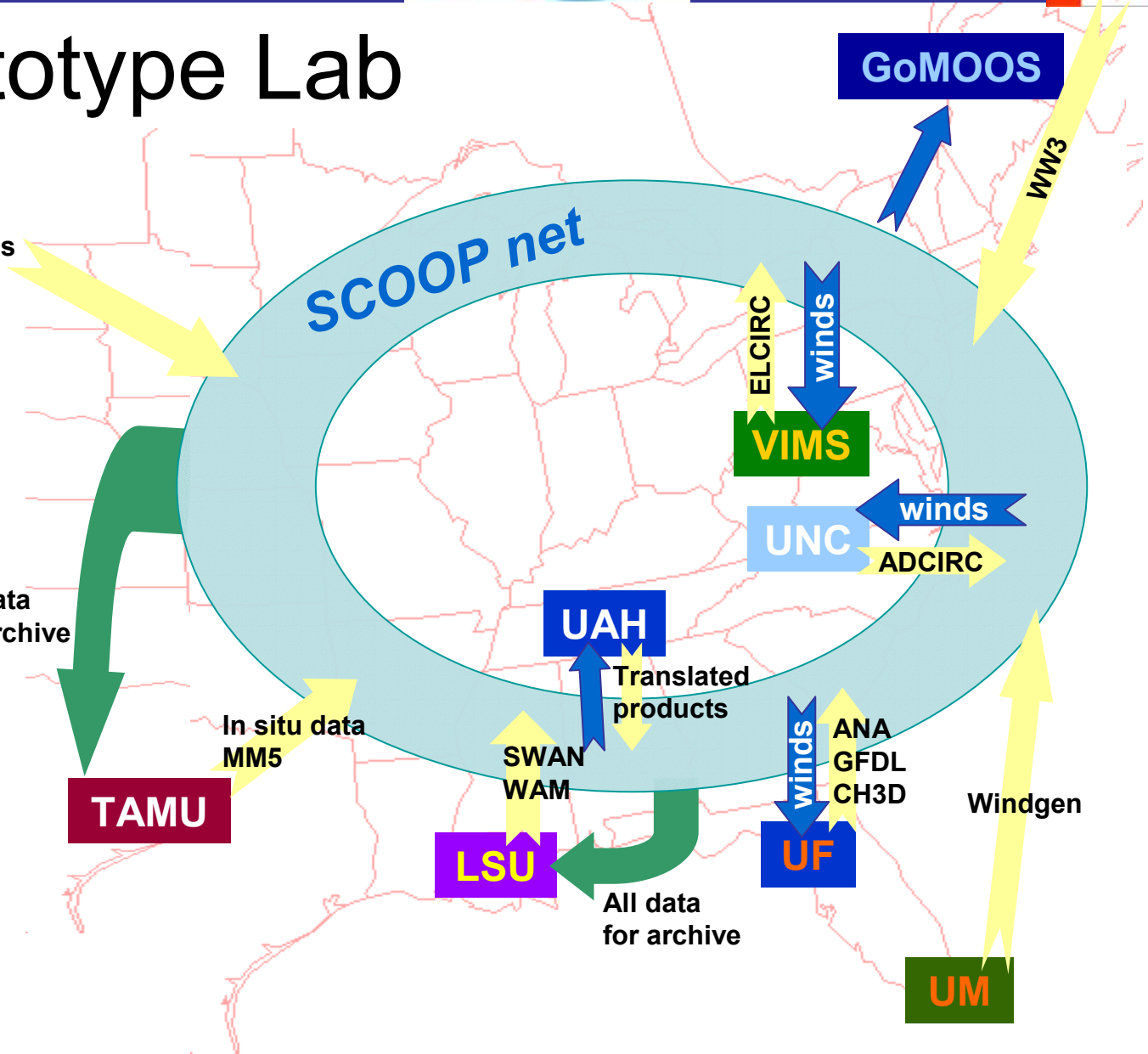
UAH

LSU

UF

UM

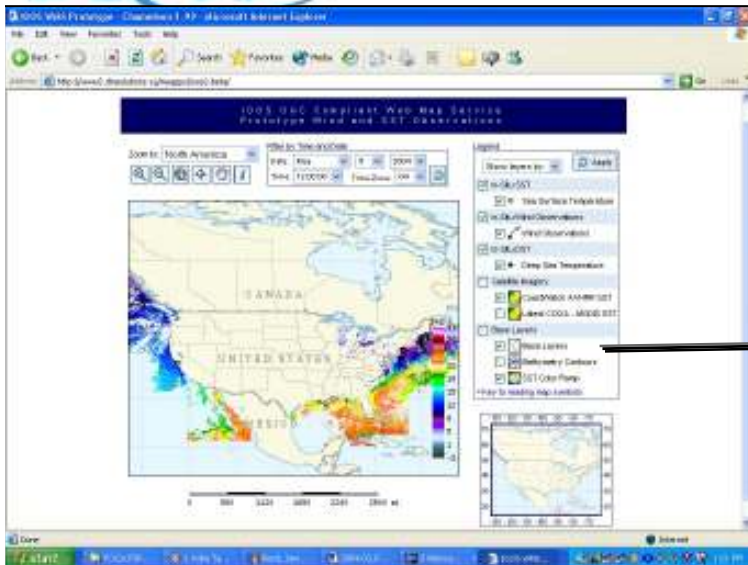
WW3



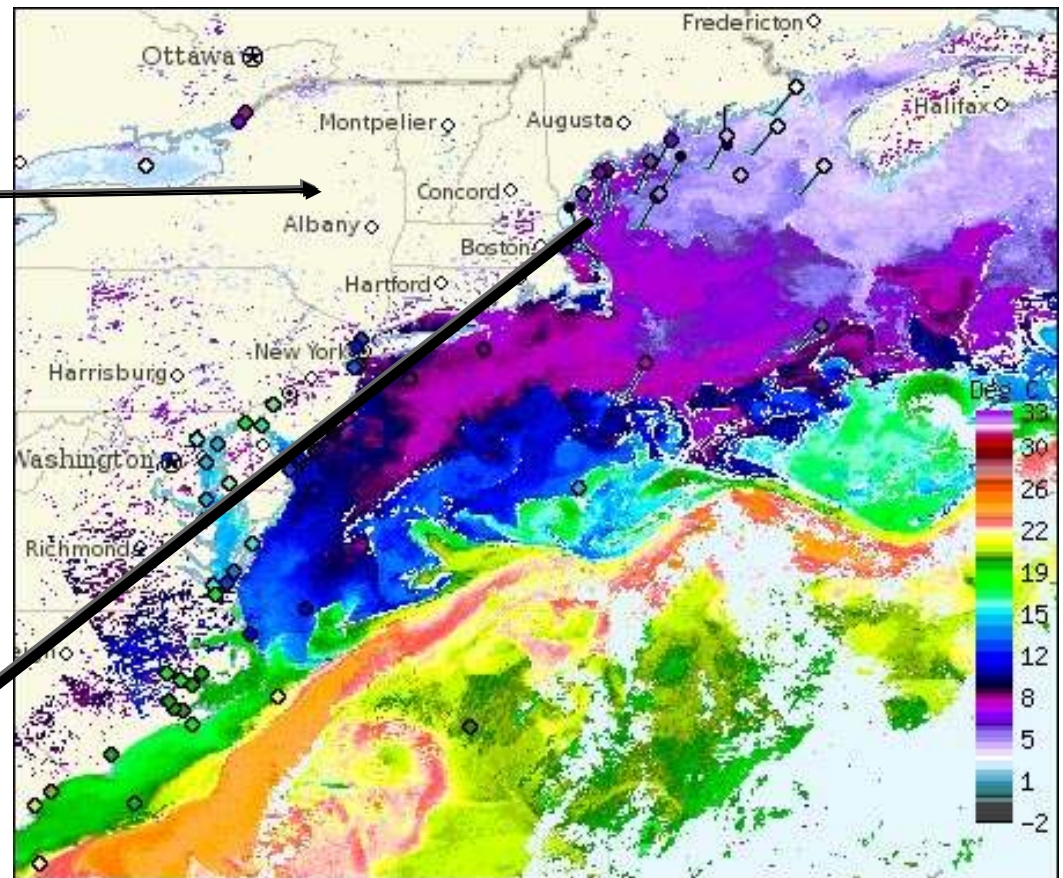
Example ...(cont.)

OpenIOOS Interoperability Testbed

...where standards enable innovation



GoMOOS Contribution



Query Results - Microsoft Internet Explorer

Query Results

GoMOOS SST

Feature:	geom_sst_geom_feature
Attributes:	oid
buoy_name	E01
buoy_id	E0110
temperature_celsius	6.7410
dtm	2004-05-03 14:00:00-04
latitude	43.7131
longitude	-89.3555
sensor_depth	1
buoy_desc	Central Maine Shelf
buoy_type	GM_BUOY
data_type	SEA_WATER_TEMPERATURE
quality	0

www.openioos.org

Conclusion ...

- ❖ timely environmental prediction requires rapid near-real time integration of many different types of data and model results
- ❖ such a task is **impossible** without the benefit of seamless interoperability provided by the **strict use of metadata standards**