



**Data Sharing and Data Quality of
Ocean Currents and Temperature:
Towards an Operational Data
Management System**

An RCOOS Data Flow

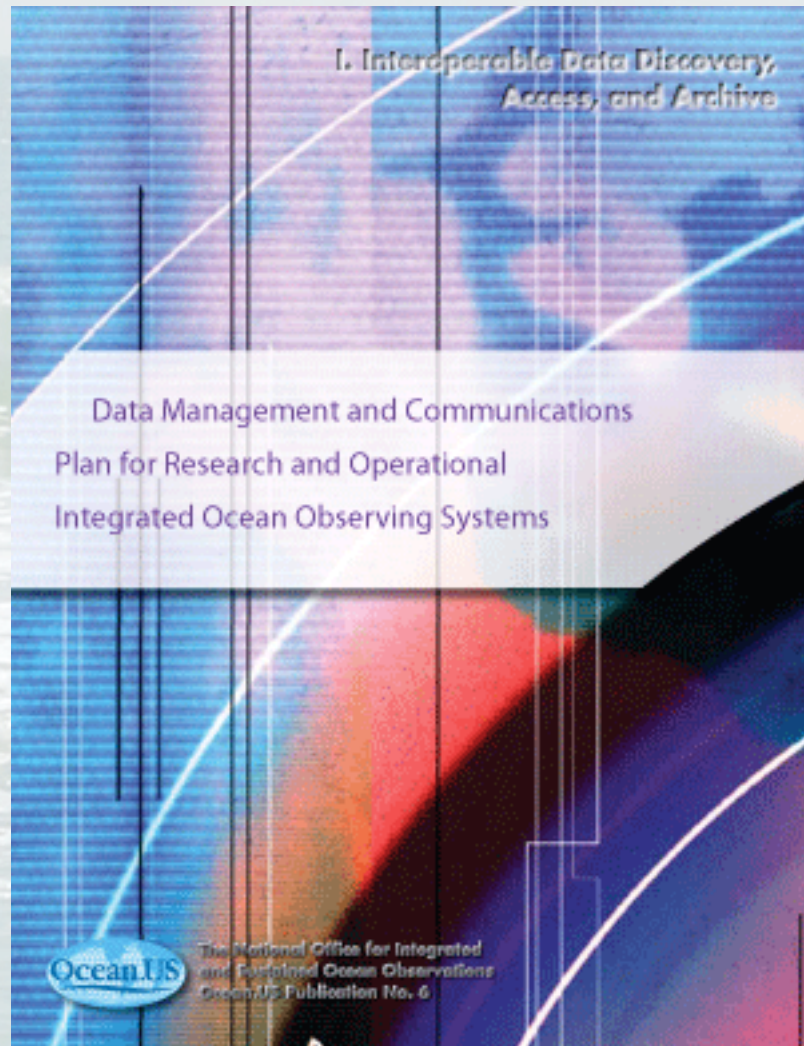
Thursday, March 9, 2006



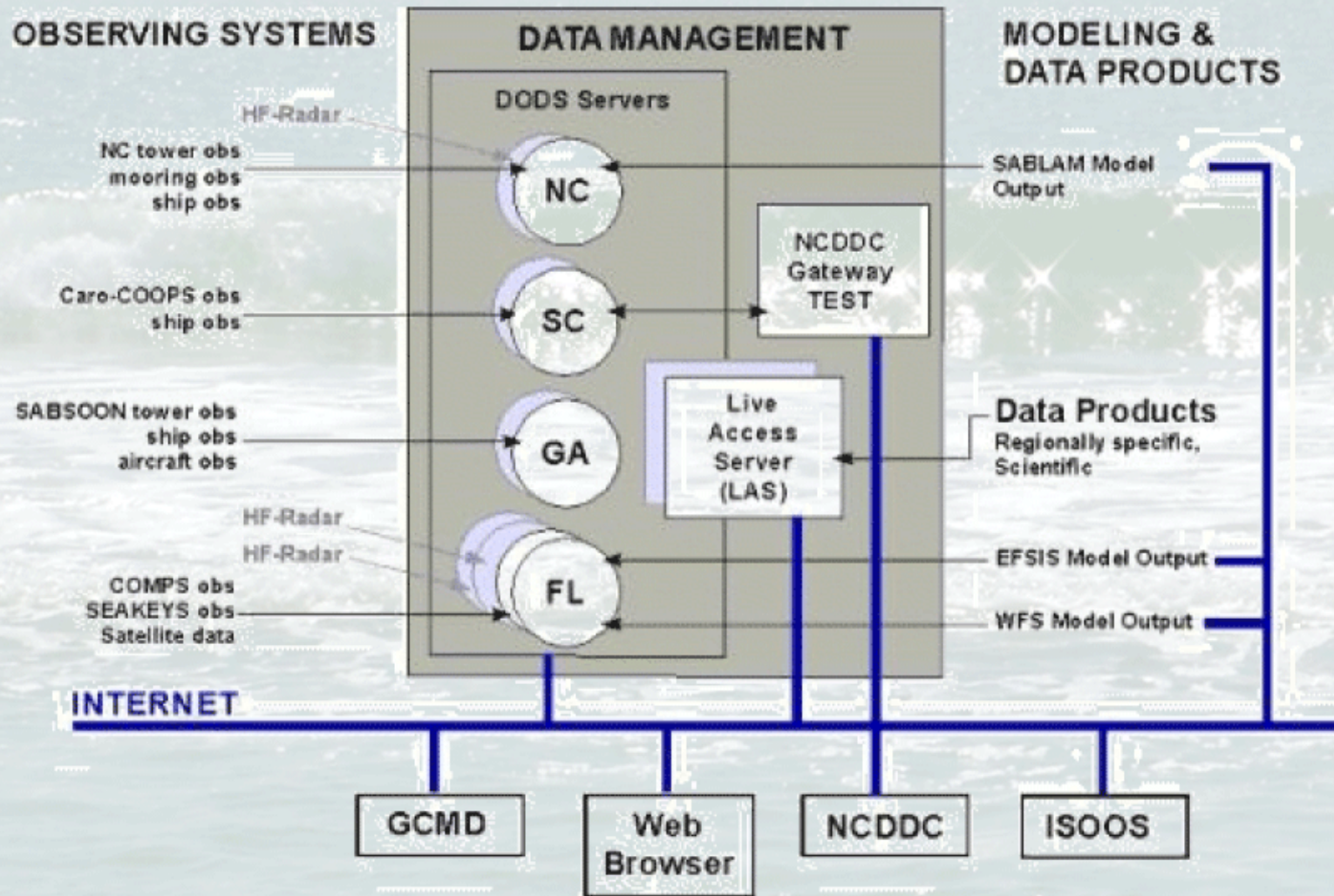
**Successful Data Management
facilitates the FLOW of data to the
needs for data in a state of
sufficiently quantifiable QUALITY in
a format and manner timely enough
to solve problems requiring data.**



Historical Data Management Tactics

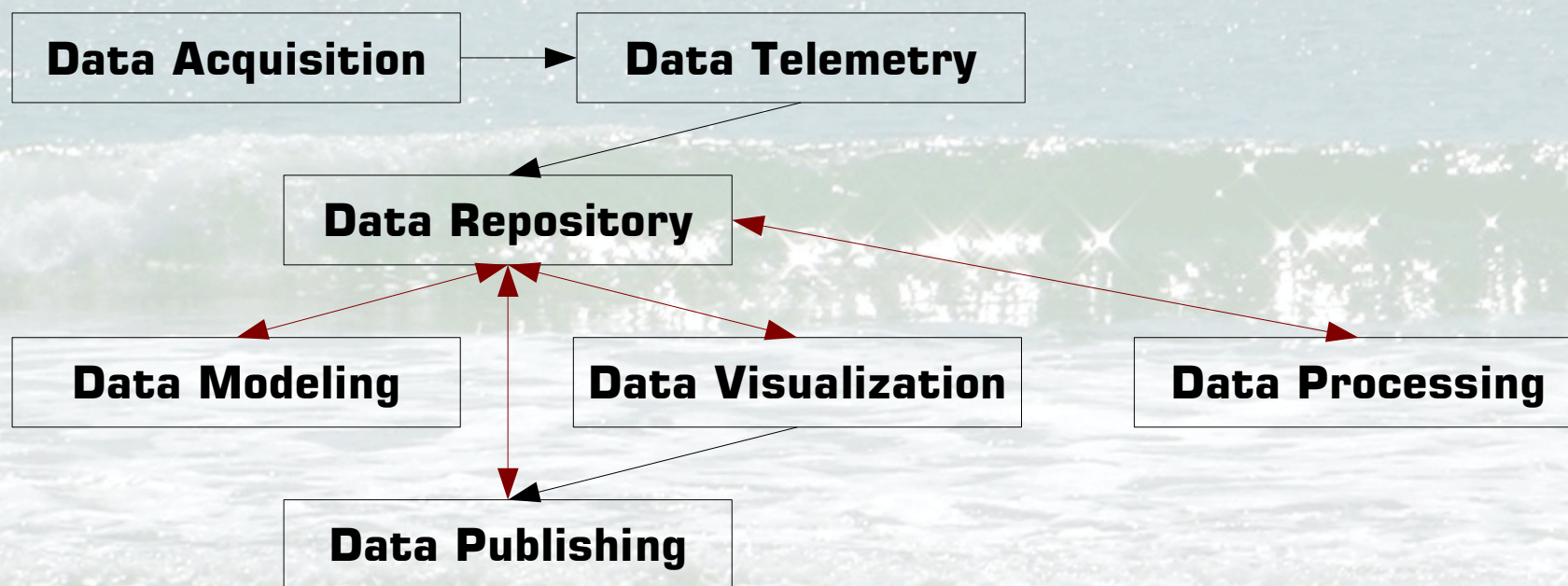


Historical View of Physical Data Flow



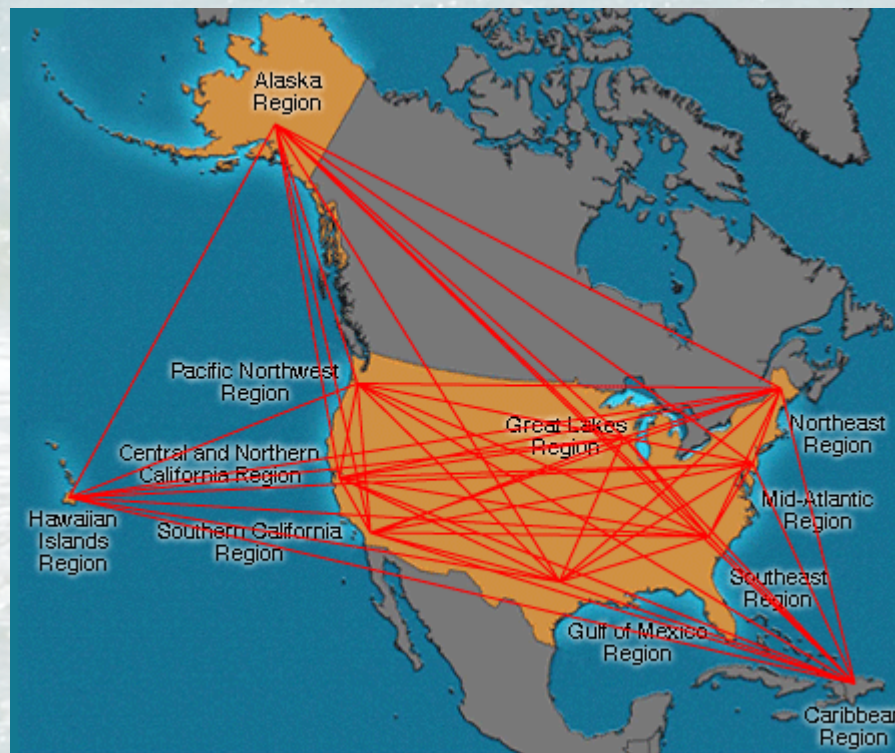


An RCOOS Logical Data Flow





Interoperable Data Flow in the IOOS





Centralized Data Flow in the RCOOS





Extended Family of Data Providers





An "Intraoperable" RCOOS



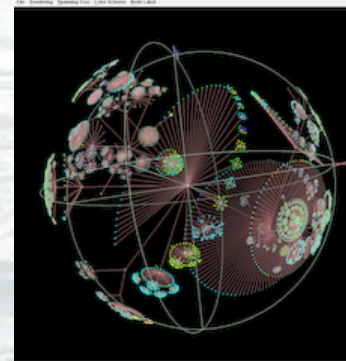


Data Provider Data Flow: Simplest Case

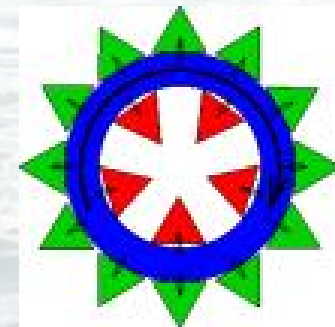
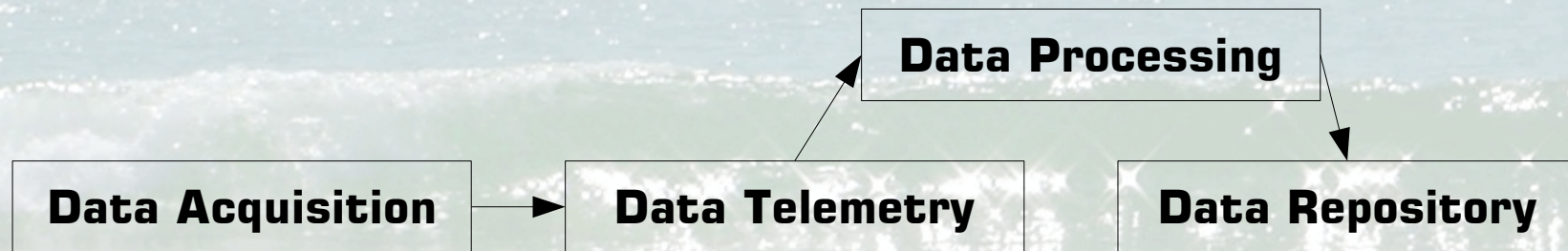
Data Acquisition

Data Telemetry

Data Repository

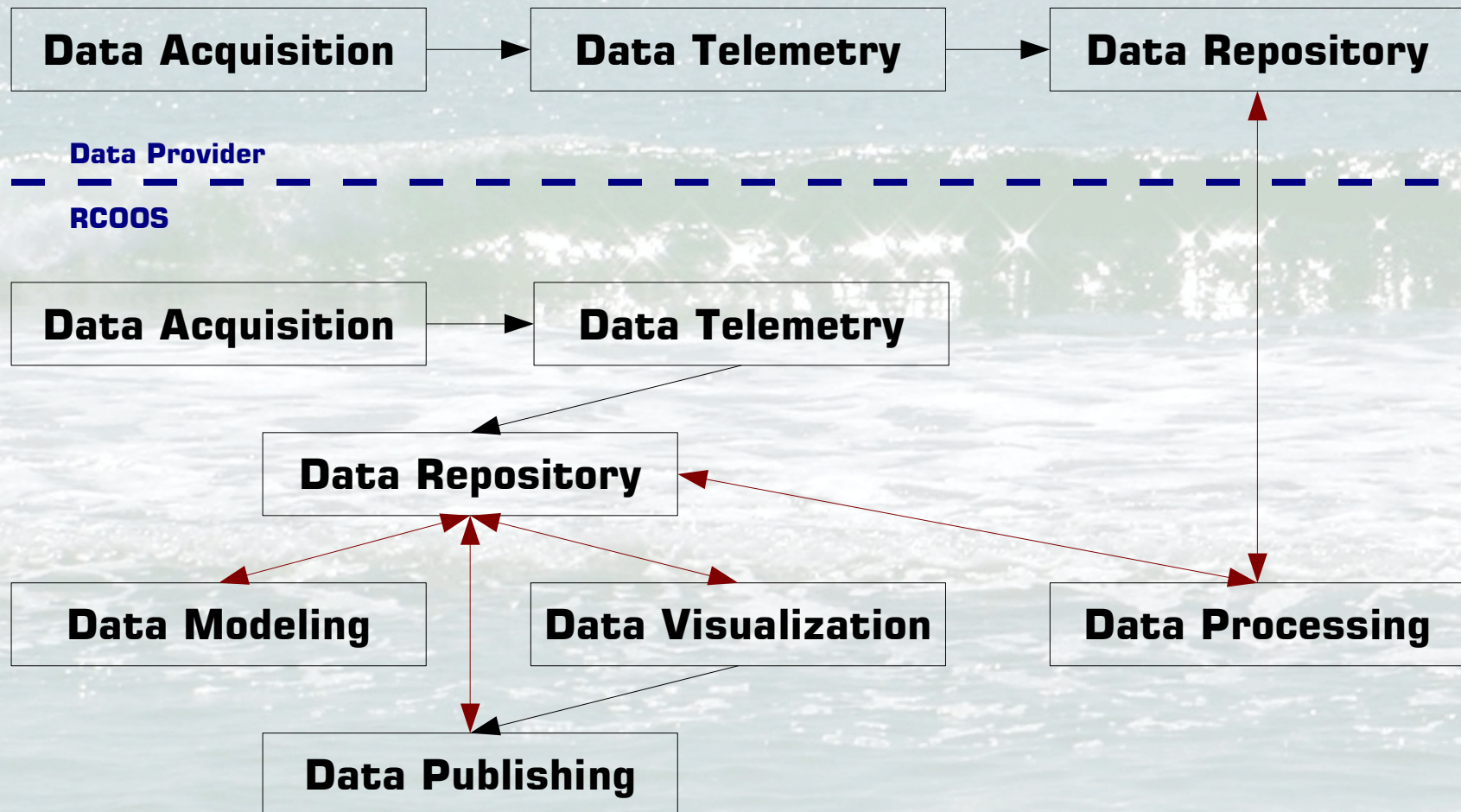


Data Provider Data Flow: Typical Case





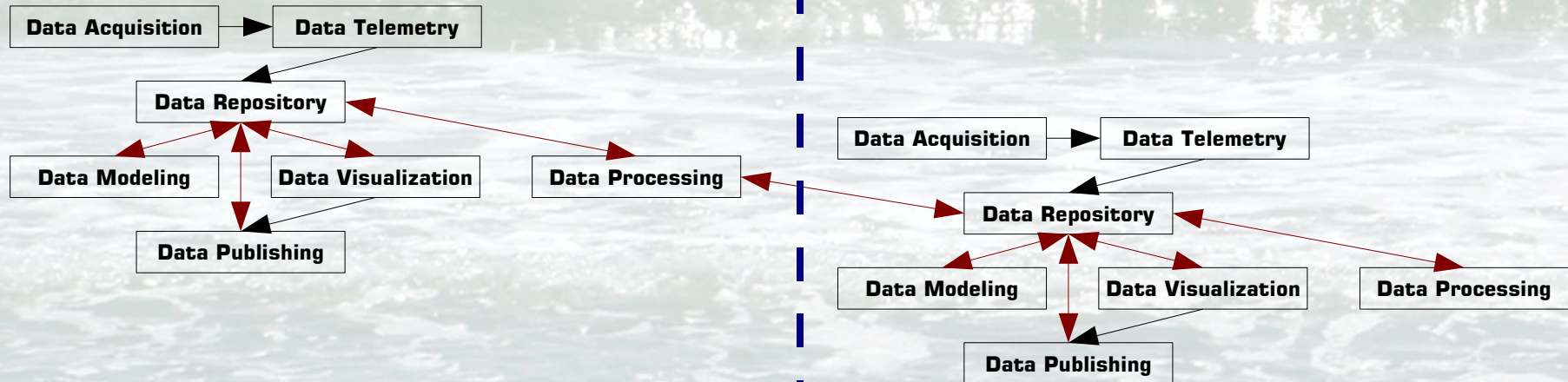
Data Provider <-> RCOOS Data Flow Centralized Collection



Data Provider <-> RCOOS Data Flow Intraoperable RCOOS

Node A

Node B





Data Acquisition Quality Management

Platforms:

Fixed
Mobile

In-situ
Remotely Sensed

Low Bandwidth
High Bandwidth

Real-time
Harvested

Systems Engineering:

Redundancy
Failover

QA/QC:

Inventory/Asset Control
Change Management
Configuration Management:
Calibration
Performance Management:
Observed Drift
Availability



Data Telemetry Quality Management

Transmission Methods:

Wifi

Cellular

Cable

POTS/ISP

LEOs:

Argos

Orbcomm

Iridium

Globalstar

Inmarsat

Remote:

QuickSCAT

MODIS

AVHRR

Radar:

WERA

Codar

Mesonet

Systems Engineering:

Redundancy

Failover

QA/QC:

Inventory/Asset Control

Change Management

Configuration Management

Performance Management:

Throughput/Data Rate

Signal to Noise/Error Rate

Availability

Capacity Management



Data Processing Quality Management

Systems Engineering:

Redundancy
Failover

QA/QC:

Version Control/Code Repository
Change Management
Configuration Management
Performance Management
Capacity Management



Data Repository Quality Management

Systems Engineering:

NetCDF/DODS/OpenDAP
THREDDS
IDD/LDM
RDBMS
ODBMS
Filesystem/XML/CSV

Replication/Redundancy

Failover

Backup

Archive

Schema

CDL

Data Dictionary/Metadata

QA/QC:

Performance Management

Capacity Management

Flags:

Aggregate/Dataset

Presence Test/Checksum/Timestamp

Gross Error/Range Test

Georeference/Threshold Test

Rate of Change/Consistency Test

Closest Neighbor Test

Model Comparison Test

Statistical Tests



Other Considerations

Data Processing:

Format Conversions
Parsing

Data Visualization:

GIS-based
Plotted:
Georeferenced
Unreferenced

Data Publishing:

Authentication
Authorization
Access/Transport Methods
Web Services
Workflow



Goals and Outputs (Discussions to Have)

- **What are the responsibilities of the Data Provider?**
- **What are the responsibilities of the RCOOS?**
- **What is the overlap?**
- **What is your role?**
- **What are the protocols for interaction between Data Provider and RCOOS?**
- **What is the procedure for agreeing on protocols between Data Provider and RCOOS?**
- **The Tools Menu or The Standard Set of Tools?**