

rvdata.us

Rolling Deck to Repository (R2R)



Infrastructure for Ocean Science

UNOLS Fleet

- Mobile platforms
- Expedition-based
- Short term obs.
- Global range
- Ocean exploration

OOI

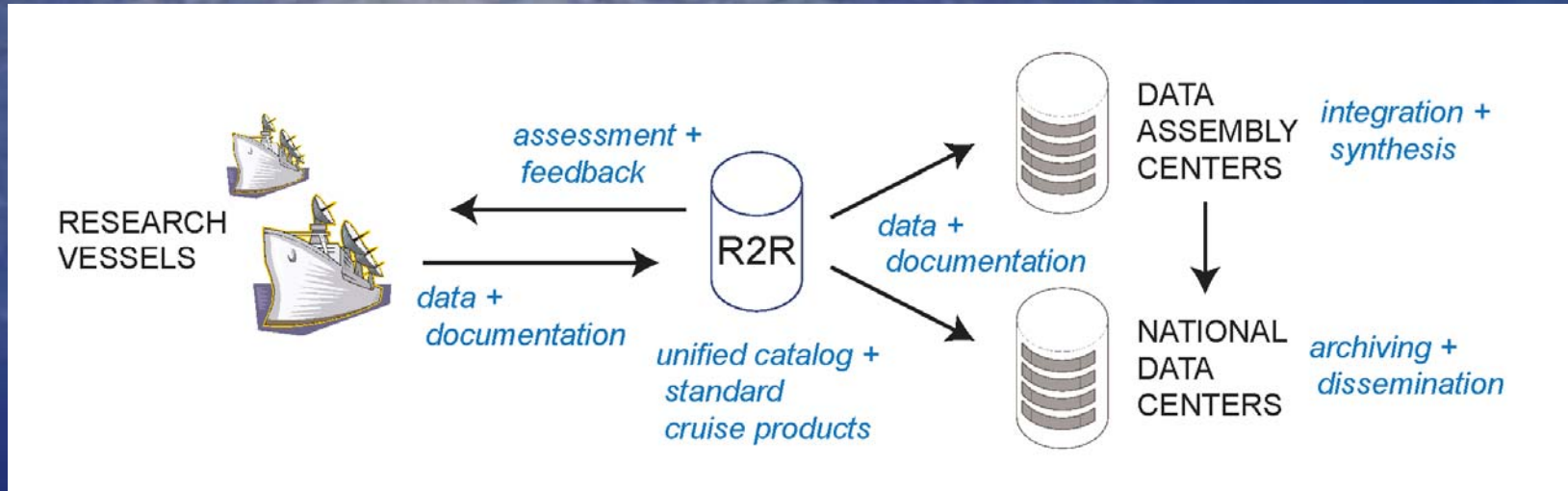
- Arrays of ~stationary platforms
- Long-term obs.
- Regional/Local range

IODP

- Sampling
- Deep time



Vision



A “direct pipeline” for routine underway cruise data from operating institutions to long term archives (NDCs) through a centralized gateway

Benefits

- Ensure data preservation and dissemination
- Standardize data acquisition and processing
- Improve data quality and documentation
- Promote data re-use, integration and synthesis
- Provide ground-truth for model validation
- Facilitate cruise planning, permits, clearances



Shipboard Data

- Operational/Underway (e.g. bathymetry, MET, ADCP, subbottom etc)
- National Facility (e.g. NDSF, Seismic, OBSIP)
- Science party instrumentation (e.g. current meter, sediment traps, chemical/physical probes etc)
































Core R2R Services

- Data Archiving & Documentation
- Cruise Catalog
- Data Dissemination via NDCs
- Event Logger
- Quality Controlled Navigational Data
- Real-time Transmission & Quality Control of MET+TSG data
- Routine post-cruise Quality Assessment



Data Submission and Archiving

Cruise Catalog

 <i>Alpha Helix</i> ★	 <i>Atlantic Explorer</i>	 <i>Atlantis</i> ★	 <i>Blue Heron</i>
 <i>Cape Hatteras</i>	 <i>Clifford A. Barnes</i> ★	 <i>Corwith Cramer</i> ★	 <i>Endeavor</i> ★
 <i>F.G. Walton Smith</i> ★	 <i>Healy</i> ★	 <i>Hugh R. Sharp</i> ★	 <i>Ka'imikai-o-Kanaloa</i> ★
 <i>Kilo Moana</i> ★	 <i>Knorr</i> ★	 <i>Marcus G. Langseth</i> ★	 <i>Maurice Ewing</i> ★
 <i>Melville</i> ★	 <i>Moana Wave</i> ★	 <i>New Horizon</i> ★	 <i>Oceanus</i> ★
 <i>Pelican</i> ★	 <i>Point Sur</i> ★	 <i>Polar Sea</i> ★	 <i>Polar Star</i>
 <i>Robert C. Seamans</i> ★	 <i>Robert Gordon Sproul</i>	 <i>Roger Revelle</i> ★	 <i>Savannah</i>
 <i>Seward Johnson</i>	 <i>Thomas G. Thompson</i> ★	 <i>Wecoma</i> ★	

[Click here for vessel details.](#) ★ - (data submitted/archived)

- Data submitted from 23 in-service vessels (18 UNOLS + 5 allied)
- Anticipate remaining 3 UNOLS ships onboard by November (RVTEC)
- 1,600+ cruises cataloged
- 5+ million files archived

Data Documentation: Vessel Profiles

Vessel Profiles

DRAFT-IN PROGRESS. Please report errors to info[at]rvdata.us. (Last updated October 5, 2010)

For reference (from 2008): Original spreadsheet

Vessel: - Device :

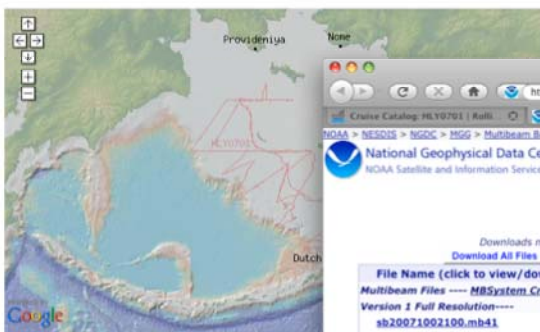
Filter Vessel : [reset]

Vessel	Device Type	Make	Model	Location
Atlantic Explorer	adcp	RDI	OS-75	
Atlantic Explorer	ctd	Sea-Bird	SBE-911plus	
Atlantic Explorer	echosounder	Kongsberg	ES-60	
Atlantic Explorer	fluorometer	Turner	10-AU	
Atlantic Explorer	gnss	Ashtech	ADU5	
Atlantic Explorer	gnss	Furuno	GP-90	
Atlantic Explorer	gnss	Northstar	951X	
Atlantic Explorer	gnss	Northstar	952X	
Atlantic Explorer	gyrocompass	Sperry	MK-37	
Atlantic Explorer	met_station	(unknown)	(unknown)	
Atlantic Explorer	subbottom	Knudsen	320B/R	
Atlantic Explorer	subbottom	Knudsen	3260	
Atlantic Explorer	tsg	Sea-Bird	SBE-21	
Atlantic Explorer	winch	(unknown)	(unknown)	
Atlantis	adcp	RDI	VM-150	
Atlantis	adcp	RDI	OSII-75S	

- Online Interface
- Search by Ship
- Search by Device Type
- 350+ underway systems

<http://www.rvdata.us/operators/profiles>

Database evolution to fully model vessel-device-type-location-interface (important for data assembly and QA)



Operator: U.S. Coast Guard
Vessel: Healy

Cruise ID	Start Date	Start Port
HLY0701	2007-04-10	Dutch Harbor

Details

Inventory

Project: Bering Sea Ecosystem Study (BEST);
Chief: Sambrotto, Raymond (LDEO)

SCIENCE PARTY

DATA SETS

System	Vendor-Model	Repository
Multibeam	L-3/SeaBeam 2112	NGDC

Cruise File List

http://www.ngdc.noaa.gov/nodc/struts/results?top_0=l&v_0=NEW907&t=101378&s=8&d=70&d=

Cruise Catalog: HLY0701 | Rail...

NOAA | NESDIS | NGDC | MGG | Multibeam Bathymetry

National Geophysical Data Center (NGDC)
Multibeam Bathymetric Data
NOAA Satellite and Information Service

HLY0701 Data File List

These data are not to be used for navigation.

Downloads may take a long time, depending on file size and data transfer rates.

Download All Files | <---Click here to package and download all files listed below

File Name (click to view/download)	File Size	Description
Multibeam Files --- MBSYSTEM Cruise Summary		
Version 1 Full Resolution----		
sb20071002100.mb41	20.1 MB	SeaBeam 2100 series vender format
sb20071002200.mb41	20.2 MB	SeaBeam 2100 series vender format
sb20071002300.mb41	11.3 MB	SeaBeam 2100 series vender format
sb20071010000.mb41	11.2 MB	SeaBeam 2100 series vender format
sb20071010100.mb41	11.4 MB	SeaBeam 2100 series vender format
sb20071010200.mb41	11.5 MB	SeaBeam 2100 series vender format
sb20071010300.mb41	11.6 MB	SeaBeam 2100 series vender format
sb20071010400.mb41	11.3 MB	SeaBeam 2100 series vender format
sb20071010500.mb41	12.5 MB	SeaBeam 2100 series vender format
sb20071010600.mb41	12.6 MB	SeaBeam 2100 series vender format
sb20071010700.mb41	18.3 MB	SeaBeam 2100 series vender format
sb20071010800.mb41	23.4 MB	SeaBeam 2100 series vender format
sb20071010900.mb41	23.2 MB	SeaBeam 2100 series vender format
sb20071011000.mb41	23.7 MB	SeaBeam 2100 series vender format
sb20071011100.mb41	23.3 MB	SeaBeam 2100 series vender format
sb20071011200.mb41	23.2 MB	SeaBeam 2100 series vender format

Download

Data Dissemination

- *Multibeam: available at NGDC (e.g. Healy)*
- *ADCP: working with NODC to establish protocols*

Web Services

Pilot Web Service endpoints for programmatic access to Catalog content -

1. Cruise-Level Metadata - (XML)

(available)

<http://www.rvdata.us/services/getCruiseSum/?id=XXX>

e.g.

<http://www.rvdata.us/services/getCruiseSum/?id=KM0508>

2. Cruise Tracklines - (GeoJSON)

(available)

<http://www.rvdata.us/services/getMapTrack/?id=XXX>

e.g.

<http://www.rvdata.us/services/getMapTrack/?id=KM0508>

3. Controlled Vocabularies - (SKOS)

(under development)

<http://www.rvdata.us/services/getVocabulary/?id=XXX>

Web Services:

- *Cruise-level Metadata**
- *Cruise Tracklines*
- *Controlled Vocabularies*

<http://www.rvdata.us/about/services>

**collaborative with NGDC*



Reciprocal Linking to Data Centers

Cruise Catalog: HLY0905



NOAA > NESDIS > NGDC > MGGD > Marine Geology & Geophysics > Sample Index

NOAA NATIONAL GEOGRAPHIC NATIONAL SCIENCE FOUNDATION NATIONAL ATMOSPHERIC ADMINISTRATION DATA CENTER

Index to Marine & Lacustrine Geological Samples
An international partnership

use your browser "back" to return to the previous page

5 Samples Archived by Participating Repositories for Cruise/Leg HLY0905

Repository Link	Ship/Platform	R2R Data Link	Sample Data Link	Device	Latitude	Longitude	Water Depth (m)	Collection Date	IGSN Link
ECS	Healy	HLY0905	HLY0905-DS1	dredge, rock	79.4	-154.45	3600	20090907	ECS000008
ECS	Healy	HLY0905	HLY0905-DS2	dredge, rock	78.6542	-157.8246	2400	20090908	ECS000009
ECS	Healy	HLY0905	HLY0905-DS3	dredge, rock	79.1235	-154.6	3300	20090909	ECS000010
ECS	Healy	HLY0905	HLY0905-DS4	dredge, rock	78.6566	-158.25	2200	20090910	ECS000011
ECS	Healy	HLY0905	HLY0905-DSS	dredge, rock	77.81383	-161.3465	2100	20090912	ECS000012

Operator: United States Coast Guard
Vessel: Healy

Cruise ID: HLY0905
Start Date: 2009-08-07
Start Port: Barrow
End Date: 2009-08-20

Project: Joint U.S./Canadian Extended Continental Shelf (ECS) Survey

NOAA > NESDIS > NGDC > MGGD > Marine Geology & Geophysics

Questions: geology.info@noaa.gov

NGDC Home | [Contacts](#) | [Data](#) | [Disclaimers](#) | [Education](#) | [News](#) | [Privacy Policy](#) | [Site Map](#)

Search the Index to Marine & Lacustrine Geological Samples

Type	Device	Make-Model (Location)	Files	Repository
multibeam	Seabeam 2112		List	

RELATED SITES

[Index to Marine & Lacustrine Geological Samples \(Info\)](#)

[Samples](#)

Cruise Catalog: AT11-07



Operator: Woods Hole Oceanographic Institution
Vessel: Atlantis

Cruise ID: AT11-07
Start Date: 2004-01-28
Start Port: San Diego

Project: Central Anomaly M... and Architecture of Young U...

SCIENCE PARTY

RELATED SITES

[Marine Geoscience Data System \(Info\)](#)

[National Deep Submergence Facility \(Info\)](#)

MARINE GEOSCIENCE DATA SYSTEM

Field: Marine AT11-07

Main Locale: [EPR-9N](#)

Lead Scientists	Role	Institution	Award
Schouten, Hans	Scientist Chief	WHOI	OCE98-19261
Fornari, Daniel	Scientist Co-Chief	WHOI	OCE98-19261
Seyfried, William	Scientist Co-Chief	University of Minnesota	OCE01-17117
Tivey, Maurice	Scientist Co-Chief	WHOI	OCE98-19261
Bach, Wolfgang	Scientist Investigator Co-Principal	WHOI	OCE02-41791
Ding, Kang	Scientist Investigator Co-Principal	University of Minnesota	OCE01-17117
Edwards, Katrina	Scientist Investigator Co-Principal	WHOI	OCE02-41791
Sewert, Stefan	Scientist Investigator Co-Principal	WHOI	OCE01-TS03

Scientific References

Expedition Metadata

Program Summary Information

Personnel

Instruments

Related Documents

[Data](#)

[ALVIN](#)

Cruise Catalog: OC415-03



Operator: Woods Hole Oceanographic Institution
Vessel: Oceanus

Cruise ID: OC415-03
Start Date: 2005-08-07
Start Port: St. George's

Project: Eddies Dynamics, Mixing, Export, ...

SCIENCE PARTY

RELATED SITES

[Biological and Chemical Oceanography Data Management Office \(Info\)](#)

[Data](#)

BCO-DMO
Biological and Chemical Oceanography Data Management Office

Database

- Welcome
- Programs: 16
- Projects: 125
- Deployments: 787
- Instruments: 198
- Datasets: 3921
- People: 1029
- Affiliations: 221
- Funding: 34
- Parameters: 1064

Data Access

- Geospatial access

Platform deployment: OC415-03

Platform: R/V Oceanus
Project: Eddies Dynamics, Mixing, Export, and Species Composition (EDDIES)
Type: vessel
Deployment: OC415-03
Synonyms: OC415-3, OC415_S2, EDDIES 2005 Survey 2
Coordinated deployments: None
Start date: 8/7/2005
End date: 8/28/2005
Location: Sargasso Sea
Locations table: List
Deployment report: http://ocb.whoi.edu/EDDIES/CRUISES/2005/OC415-3_CrRptDraft_091405.doc

Description

EDDIES project 2005 Survey 2 cruise
Funded by: NSF OCE-0241310
Original cruise data are available from the > NSF R2R data catalog

Datasets associated with this platform deployment

People associated with this platform deployment

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Funded by the U.S. National Science Foundation



R2R Event Logger

- ELOG open-source package is foundation of R2R Event Logger
- Tested prototype application on several cruises (*Oceanus* and *Endeavor*)
- Trained two MATE interns
- Initial feedback from science parties very positive

Cruise: Journal
OC462

R/V Oceanus OC462 WHOI-WHOI

Search Reset Form Back

Mode: Display full entries Summary only Display threads Export to: CSV ("," separated) CSV (";" separated) XML Raw

Options:
 Show attachments
 Printable output
 Sort in reverse order
 Search all logbooks
 Display 20 entries per page

Filters: (Text fields are treated as regular expressions)

Entry date: Start: [] [] Year: [] / Show last: []
 End: [] [] Year: []

Event: []
 Cruise: []
 Station: []
 Event-Type: []
 Event-Activity: []
 GPS_Time: []
 Latitude: []
 Longitude: []

R/V Oceanus OC462 WHOI-WHOI, Page 1 of 2

Depth: New | Find | Select | Import | Config | Last day | Help

Author: Full | Summary | Threaded

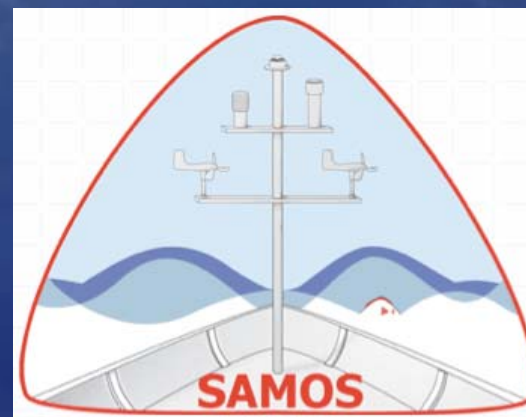
Goto page 1, 2 Next All

Revision	ID	Date	Event	Cruise	Station	Event-Type	Event-Activity	GPS_Time	Latitude	Longitude	Depth (meters)	Author	Revisions	Comment
	35	Sun May 30 09:41:10 2010	OC462201041001	oc462	port	Other		2010/05/30 09:41:06	41.523417	-70.671750	knudsen off	Istolp from 127.0.0.1		beck at the dock at midnight
	34	Sun May 30 01:25:02 2010	OC462201024001	oc462	n/a	Echosounder:12	Line:End	2010/05/30 01:24:58	41.232750	-70.884550	59	Istolp from 127.0.0.1		turne off ducers for cruise
	33	Fri May 28 23:52:58 2010	OC462201052001	oc462	002	Mooring	Station:Release	2010/05/28 23:52:54	39.494267	-70.589067	2470	Istolp from 127.0.0.1		and away it goes
	32	Fri May 28 23:08:20 2010	OC462201008001	oc462	002	Mooring	Station:OnBoard	2010/05/28 23:08:16	39.493000	-70.587200	2474	Istolp from 127.0.0.1		on deck
	31	Fri May 28 22:28:22 2010	OC462201028001	oc462	002	Mooring	Station:Arrive	2010/05/28 22:28:18	39.493717	-70.588623	2472	Istolp from 127.0.0.1		arrive on station
	30	Fri May 28 20:39:18 2010	OC462201039001	oc462	n/a	TSG	Line:Abort	2010/05/28 20:39:14	39.451083	-70.189300	2521	Istolp from 127.0.0.1		fluorometer removed from uncontaminated saltwater system
	29	Fri May 28 10:20:20 2010	OC462201020001	oc462	n/a	MET	WXTS	2010/05/28 10:20:16	39.211617	-67.614383	n/a	Istolp from 127.0.0.1		wind sensor data
	28	Fri May 28 10:17:32 2010	OC462201017001	oc462	n/a	MET	GPS:1850	2010/05/28 10:17:28	39.210400	-67.602767	n/a	Istolp from 127.0.0.1		GPS glitch
	27	Thu May 27 14:26:34 2010	OC462201026001	oc462	n/a	TSG	Line:Other	2010/05/27 14:26:30	38.741700	-62.492883	5012	Istolp from 127.0.0.1	Thu May 27 14:20:40 2010 by Istolp from 127.0.0.1	fluorometer
	26	Wed May 26 23:45:25 2010	OC462201045001	oc462	n/a	Echosounder:12	Line:End	2010/05/26 23:45:22	38.436417	-59.232867	5113	Istolp from 127.0.0.1		secured 12.. weather is way rough to find the bottom
	25	Wed May 26 14:13:20 2010	OC462201013001	oc462	n/a	TSG	Line:Other	2010/05/26 14:13:16	38.275300	-57.617033	5164	Istolp from 127.0.0.1		water flow



Real-Time Data

- R/V *Atlantic Explorer* became first ship to submit MET + TSG data to SAMOS under R2R
- Approaching consensus on metadata content for real-time data transfer
- Will be circulated to the community via real-time mailing list



ATLANTIC EXPLORER															
	Air Temperature	Atmospheric Pressure	Conductivity	Earth Relative Wind Direction	Earth Relative Wind Direction 2	Earth Relative Wind Speed	Earth Relative Wind Speed 2	Latitude	Longitude	Platform Course	Platform Heading	Platform Heading 2	Platform Relative Wind Direction	Platform Relative Wind Direction 2	Platform Relative Wind Speed
10/09/10	Green	Green	Green	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
10/08/10	Green	Green	Green	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
10/07/10	Green	Green	Green	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
10/06/10	Green	Green	Green	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
10/05/10	Green	Green	Green	Red	Red	Yellow	Yellow	Green	Green	Green	Green	Green	Green	Green	Green
10/04/10	Green	Green	Green	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
10/03/10	Green	Green	Green	Red	Red	Yellow	Yellow	Green	Green	Green	Green	Green	Green	Green	Green
10/02/10	Green	Green	Green	Red	Red	Yellow	Yellow	Green	Green	Green	Green	Green	Green	Green	Green
10/01/10	Green	Green	Green	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
09/30/10	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
09/29/10	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
09/28/10	Green	Green	Green	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
09/27/10	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
09/26/10	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
09/25/10	Green	Green	Green	Yellow	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
09/24/10	Green	Green	Green	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
09/23/10	Green	Green	Green	Red	Red	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
09/22/10	Green	Green	Green	Yellow	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green

<http://samos.coaps.fsu.edu/html>



Post-Cruise Quality Assessment

- Discussions with NGDC and NODC re: metadata
 - Minimal + Optimal Metadata
 - QA to include assessment of completeness of metadata
- Developing specs on Quality Assessment Certificates (QACs)
- Design of Multibeam QA and metadata requirements to be vetted with community in coming months
- Design of Gravity/Magnetics data reduction and QA approach and metadata requirements to be presented at 2010 Fall AGU



Community: Operator Visits

- R/V Thompson (Seattle, Nov. 2009)
- MLML (Moss Landing, Dec. 2009)
- R/V Wecoma (Newport, Feb. 2010)
- R/V Endeavor (Narragansett, Apr. 2010)
- R/V Langseth (Honolulu, July 2010)
- UAF (Seward, July 2010)
- SSV Seamans (San Diego, Aug. 2010)
- Duke/UNC (Beaufort, Aug. 2010)



Community: *Meetings/Presentations*

- 2009 Fall AGU
- 2010 Ocean Sciences
- Intl. Conf. on Marine Data and Info. Systems (IMDIS)
- SeaDataNet
- NOAA R2R Kickoff Meeting
- GEBCO
- National Geoinformatics Community (NGC) Workshop
- *Upcoming: RVTEC, Fall AGU*





Catalog Status

Ships: 24
Cruises: 1607
Files: 5853071
October 13, 2010

Search

Search input field and button

News

- R2R Quarterly Report 10/06/2010
R2R Event Logger testing - R/V Oceanus 09/22/2010
Site visit to Duke/UNC - R/V Cape Hatteras 08/03/2010

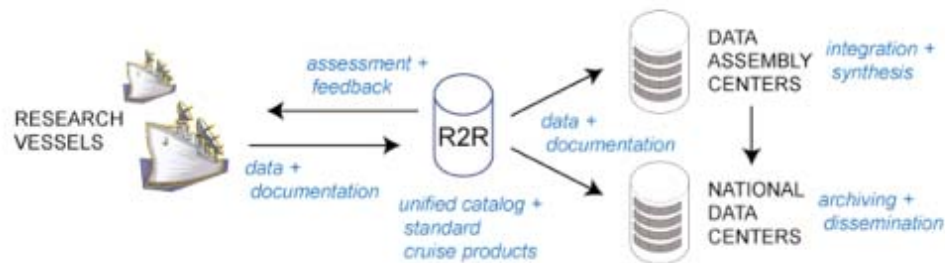
more

Overview

With their global capability and diverse array of sensors, the U.S. academic research fleet is an essential mobile observing platform for ocean science. Data collected on every expedition are of high value, especially given the high costs and increasingly limited resources for ocean exploration. The Rolling Deck to Repository (R2R) program aims to develop comprehensive fleet-wide management of underway data to ensure preservation of and access to our national oceanographic research data resources.

The R2R Portal is a central shore-side data gateway through which underway data from oceanographic expeditions will be routinely cataloged and securely transmitted to the national long-term digital data archives including the National Geophysical Data Center (NGDC) and National Oceanographic Data Center (NODC). Data submission will be established through vessel operators rather than individual science parties, ensuring routine preservation of the full underway data distribution.

R2R will provide essential data documentation for every expedition along with new tools to improve documentation of the wide array of shipboard data collection activities typical of modern expeditions. Protocols will be developed for post-cruise quality assessment of high priority underway data types, to provide feedback to operators. Quality assessment of meteorological data will be implemented in near-real-time in partnership with the SAMOS program. The R2R program plan is to leverage and augment the existing centralized information resources of the UNOLS office, vessel operators, and National Data Centers to facilitate the documentation and delivery of data from "rolling deck" to "repository."



http://www.rvdata.us

news@rvdata.us

