Overview

Mission:
Stewardship of routinely-acquired environmental sensor data from U.S. academic research vessels

Support:
NSF, ONR, SOI + NOAA

R2R Services:
• Publish master cruise catalog
• Organize, archive, and disseminate original underway data+documents
• Assess data quality
• Create post-field data products
• Support at-sea event logging
2017 Updates

New R/Vs included
  RP Flip

Infrastructure
  Move to commercial Cloud for
  LTA cruise data distro

Enhancements to Catalog
  New Search Options (by Partner Data Repository)
  Instrument QA added to Catalog
New Search by Partner Repository

Cruise Search

- Vessel
- Cruise ID
- Dates
- Program
- Campaign
- **Partner**
- WESN
- Institution
- Person

**Cruise Search**

<table>
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<tr>
<th>Vessel</th>
<th>Cruise ID</th>
<th>Depart Date</th>
<th>Port</th>
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[http://www.rvdata.us/search](http://www.rvdata.us/search)
Access to Instrument QA From Cruise Catalog
Real-time MET/TSG via SAMOS

Status

• Continue routine science QC for 8 university and 2 NSF polar Antarctic vessels via R2R

New in 2017

• Completed recruitment of Sally Ride
• Seeking additional recruits
• With R2R Advisory Committee advice- begin to develop QC for fluorometer data
Documenting Time Sources

- R2R Advisory Committee recommendation to canvas ship operators for time source used for data streams.
- Fleet wide survey of time servers
  - Time servers used on 12 vessels, 4 do not, 4 no response
  - Make and model documented for 19 time servers across 12 UNOLS vessels
- Detailed work with RV Neil Armstrong
  - Parent time source and acquisition software information collected for 22 devices
- All time server information and relationships preserved in database
Fleet Wide Results

A look at all the time sources throughout the fleet

Number of Devices = 19

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<tr>
<th>Vessel</th>
<th>Time Server 1</th>
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Legacy Data Rescue

R/V Endeavor (URI)
• 178 Cruises Dating back to 1995

R/V Seward Johnson (Harbor Branch)
• 263 Cruises dating back to 1994

• Old cruise distros on hard drives and DVDs
• Recovered, cataloged, to be inventoried
Cloud Service Project

Test feasibility of running R2R Processes in Cloud

- Test case: Multibeam QA – most memory intensive
- Create Server
- Configure for network and security needs
- Compile/adapt software
- Monitor Performance

Funded by Schmidt Ocean Institute
R2R Staff Transitions

LDEO R2R
- Bob Arko – Founding Technical Director
- Suzanne O’Hara - New Technical Director

WHOI R2R
- Cyndy Chandler retired 2017
- Laura Stolp - New WHOI PI

Thanks to Bob and Cyndy!
## Status: Event Logger

**Deployments June 2016- July 2017**

<table>
<thead>
<tr>
<th>Vessel</th>
<th># Cruises</th>
<th>Total</th>
<th>Affiliation</th>
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<td>18</td>
<td>WHOI/UT/PSU/FFI</td>
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<td>R/V Atlantis</td>
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<td>R/V Sikuliaq</td>
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<td>UW/OSU/UDEL/UAF/USF/UMD_CES</td>
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</tbody>
</table>

UNOLS Annual Meeting  
Nov 29–30, 2017
Status: Cruises Per Year Archived

2009 Beginning of R2R
Data Volumes: 7X Increase

Data Volume (TB)

Year

Beginning of R2R

UNOLS Annual Meeting
Nov 29–30, 2017
Data Volumes By Sensor

Year

Volume (MB)


0 5000000 10000000 15000000 20000000 25000000 30000000 35000000 40000000 45000000 50000000 55000000 60000000

Multibeam

SplitBeam

SingleBeam

All Others

WC recorded
UNOLS Data to NCEI CO

UNOLS Survey Vessels

WCSD Archived
CY2016: 4.03 TB
CY2015: 1.08 TB

WCSD Requested
CY2016: 2.67 TB
CY2015: 685 GB

WCSD Data archived by source
(as of April 2017)
Multibeam Cruises at NCEI

NOAA/Internat/Other

From US Academic Fleet
Impacts: Contributing to Global Syntheses

- Multibeam
  - IEDA Global Multi-Resolution Topography (GMRT) synthesis
  - (Coming Soon) NOAA Multibeam Bathymetry Mosaic
- ADCP: NOAA Global Ocean Currents Database
- Real-time MET (SAMOS): International Comprehensive Ocean-Atmosphere Data Set (ICOADS)
- TSG: NOAA Global Thermosalinograph Database:
  - New Portal Coming Soon
  - SAMOS data already contributing, R2R cruise distro TSG in future
- CTD & XBT: NOAA World Ocean Database (R2R contribution coming soon)
Data Syntheses

Global Multi-Resolution Topography (GMRT) Synthesis

Above: Shiptracks for Multibeam data distributed through R2R.

New cruises (26) processed since last UNOLS Annual Meeting report (Nov. 2016)

GMRT is data service of IEDA
International Comprehensive Ocean-Atmosphere Data Set (ICOADS)

Above: METOC data contributed by SAMOS in partnership with R2R (as of ICOADS v 3.0).
# UNOLS Ships: 10
# SAMOS Records: 278,1014
# Ship Days: 11,792
Collaborations

SeaView and R2R highlighted in article in "OOI Special Issue" of Oceanography

Figure 1: Cruise tracks and station locations of data within SeaView’s Pioneer region collection.

SeaView project: Thematic data collections, organized+formatted
Acknowledgements

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