

Overview

Mission:























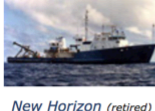










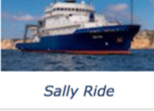
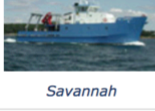





Stewardship of routinely-acquired environmental sensor data from U.S. academic research vessels

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

 <i>Alpha Helix (retired)</i>	 <i>Atlantic Explorer</i>	 <i>Atlantis</i>	 <i>Blue Heron</i>
 <i>Cape Hatteras (retired)</i>	 <i>Clifford A. Barnes</i>	 <i>Corwith Cramer</i>	 <i>Endeavor</i>
 <i>Eltanin (retired)</i>	 <i>F.G. Walton Smith</i>	 <i>Falkor</i>	 <i>Healy</i>
 <i>Hugh R. Sharp</i>	 <i>Ka`imikai-O-Kanaloa</i>	 <i>Kilo Moana</i>	 <i>Knorr (retired)</i>
 <i>Laurence M. Gould</i>	 <i>Marcus G. Langseth</i>	 <i>Maurice Ewing (retired)</i>	 <i>Melville (retired)</i>
 <i>Nathaniel B. Palmer</i>	 <i>Neil Armstrong</i>	 <i>New Horizon (retired)</i>	 <i>Oceanus</i>
 <i>Okeanos Explorer</i>	 <i>Pelican</i>	 <i>Point Sur</i>	 <i>Polar Sea</i>
 <i>Robert C. Seamans</i>	 <i>Robert D. Conrad (retired)</i>	 <i>Robert Gordon Sproul</i>	 <i>Roger Revelle</i>
 <i>Ronald H. Brown</i>	 <i>Sally Ride</i>	 <i>Savannah</i>	 <i>Sikuliaq</i>
 <i>Thomas G. Thompson</i>	 <i>Vema (retired)</i>	 <i>Thomas Washington (retired)</i>	 <i>Wecoma (retired)</i>



2017 Updates

New R/Vs included

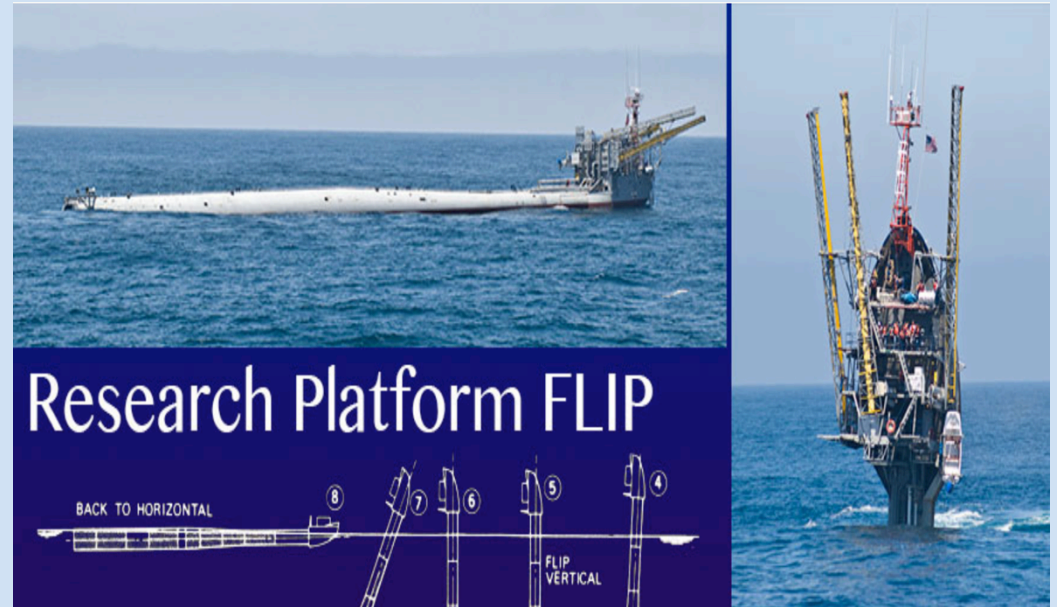
RP Flip

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

www.rvdata.us/search

Cruise Search

Vessel: (ANY)

Cruise: (quick select of recent cruises from the last ~three years) (ANY)

Dates: 1950 01 01 From 2020 12 31 To

Program: (Broad community initiative, typically decadal-scale or greater) (ANY)

Campaign: (series of closely-related cruises for a single project) (ANY)

Partner: (Repository that holds additional content related to a cruise) (ANY)

- BOD-DMD (Biological & Chemical Oceanography Data Management Office)
- COHDO (CLIVAR and Carbon Hydrographic Data Office)
- ECL (EarthChem Library)
- IMLGS (Index to Marine and Lacustrine Geological Samples)
- MOOS (Marine Geoscience Data System)
- OBSIP (Ocean Bottom Seismograph Instrument Pool)**
- SAMOS (Shipboard Automated Meteorological and Oceanographic System)
- SESAR (System for Earth Sample Registration)
- USAP-OC (United States Antarctic Program Data Center)


N: 88
W: -180 E: 180
S: -76

Person: (science party member, observer, or vessel technician) (ANY)

Institution: (ANY)

Search Reset

Cruise Search

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

www.rvdata.us/search/result

Search Result

Query = Ocean Bottom Seismograph Instrument Pool (OBSIP)
Number of Cruises = 93

Cruise ID	DOI	Vessel	Depart Date	Port	Arrive Date	Port
MGL1610	10.7284/907099	Langseth	2016-10-23	Arica	2016-12-09	Arica
MGL1601	10.7284/906652	Langseth	2016-01-04	Porto Grande	2016-02-25	Porto Grande
MGL1521	10.7284/906516	Langseth	2015-11-18	Piralevs	2015-12-16	Iraklion
OC1510A	10.7284/906665	Oceanus	2015-10-07	Newport	2015-10-18	Newport
TN331	10.7284/906264	Thompson	2015-10-01	Newport	2015-10-15	Newport
OC1508B	10.7284/906267	Oceanus	2015-08-26	Port Hueneme	2015-09-02	Newport
RR1509	10.7284/902022	Revelle	2015-06-20	Napier	2015-06-30	Napier
MGL1408	10.7284/904085	Langseth	2014-09-15	Norfolk	2014-10-22	Norfolk
OC1409A	10.7284/900721	Oceanus	2014-09-07	Newport	2014-09-26	Newport
OC1408A	10.7284/900719	Oceanus	2014-08-09	Newport	2014-08-13	Newport
OC1407B	10.7284/900718	Oceanus	2014-07-24	Newport	2014-08-06	Newport
OC1407A	10.7284/900717	Oceanus	2014-07-10	Newport	2014-07-19	Newport
TN312	10.7284/900991	Thompson	2014-06-22	Newport	2014-07-06	Seattle

<http://www.rvdata.us/search>



Access to Instrument QA From Cruise Catalog

UNDERWAY DATA SETS (ORIGINAL FIELD DATA)

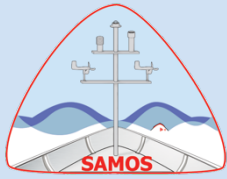
NOTE: The data set inventory below may not be complete. Please [Contact R2R](#) with questions or requests.

Device Type	Make-Model [Location]	Files	DOI	Quality Report	Download
adcp	Hawaii UHDAS	List	10.7284/101922		NCEI Link
gnss	Ashtech ADU2	List	10.7284/101914		R2R Link
gnss	Furuno GP-90D	List	10.7284/101913	● view	R2R Link
gnss	MX Marine MX421	List	10.7284/101920		R2R Link
gravimeter	Bell BGM-3	List	10.7284/101915	● view	NCEI Link
magnetometer	Marine Magnetics SeaSPY	List	10.7284/101911	▲ view	R2R Link
metstation	SIO MET-System	List	10.7284/101916		R2R Link
multibeam	Kongsberg EM122	List	10.7284/101921	● view	NCEI Link
singlebeam	Knudsen 320B/R	List	10.7284/101923	▲ view	NCEI Link
winch					
xprobe					

Click column headings to sort

Rating	Device	Cruise	Vessel	QA Summary	acrosstrack beam N noise	acrosstrack beam noise	has minimum metadata	has surface sound velocity	mean across track slope	% expected data files	% files all valid altitude	% files all valid sonar draft	% files with amplitude	% files with bathymetry	% files with data records	% files with sidescan	% good bathymetry variance beams	% pings valid altitude	% pings valid water depth	% possible amplitude beams	% possible bathymetry beams	% valid navigation
●	Multibeam Kongsberg EM122	RR1002	Roger Revelle	QA Summary	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●





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



Catalog Status

(In Service) Vessels: **26**

Cruises: **6847**

Archived Files: **27125121**

October 17, 2017

cjolson

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▾ [Administer](#)

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Fleet Time Server Inventory

[View](#) [Edit](#) [Grant](#)

A look at the all time sources throughout the fleet

Number of Devices = 19

Vessel	Time Server 1	Time Server 2
Atlantis	ES-185E/NTP	ES-185E/NTP
F.G. Walton Smith	SyncServer S200	
Healy	SyncServer S300	SyncServer S300
Hugh R. Sharp	SecureSync	
Ka`imikai-O-Kanaloa	NTS-100i	NTS-100i
Kilo Moana	Netclock 9383	Netclock 9383
Marcus G. Langseth	SyncServer S250	TymServe 2100
Neil Armstrong	ES-185E/NTP	
Oceanus	SyncServer S350	
Roger Revelle	Sonoma N12	SPS351
Sally Ride	Sonoma N12	BD982
Sikuliaq	SyncServer S350	

[add new comment](#)



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



R/V Endeavor



R/V Seward Johnson

© CMarino

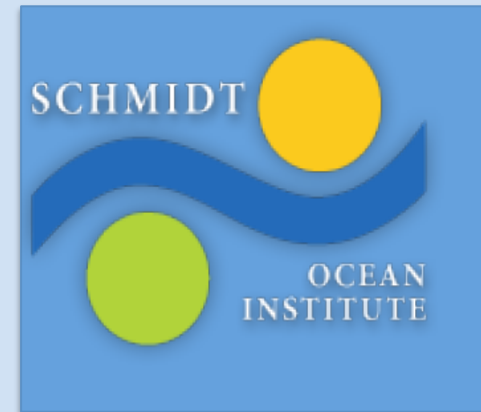
vesseltracker.com



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



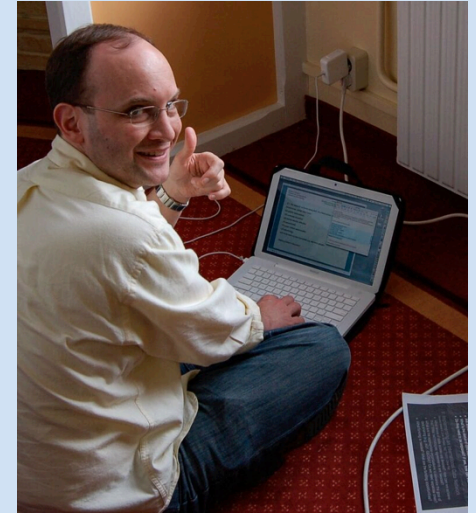
Funded by Schmidt Ocean Institute



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!



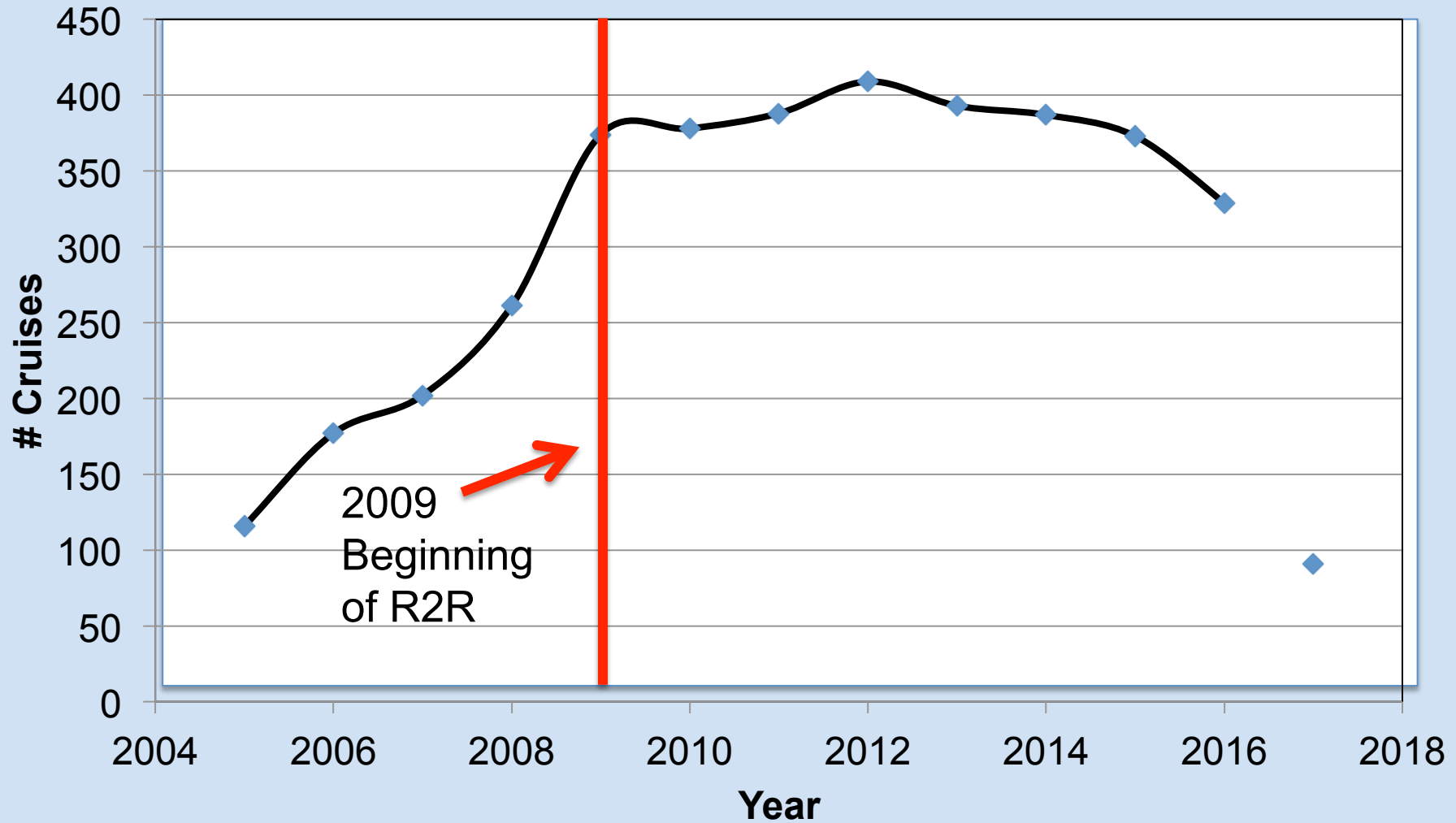
Status: Event Logger

Deployments June 2016- July 2017

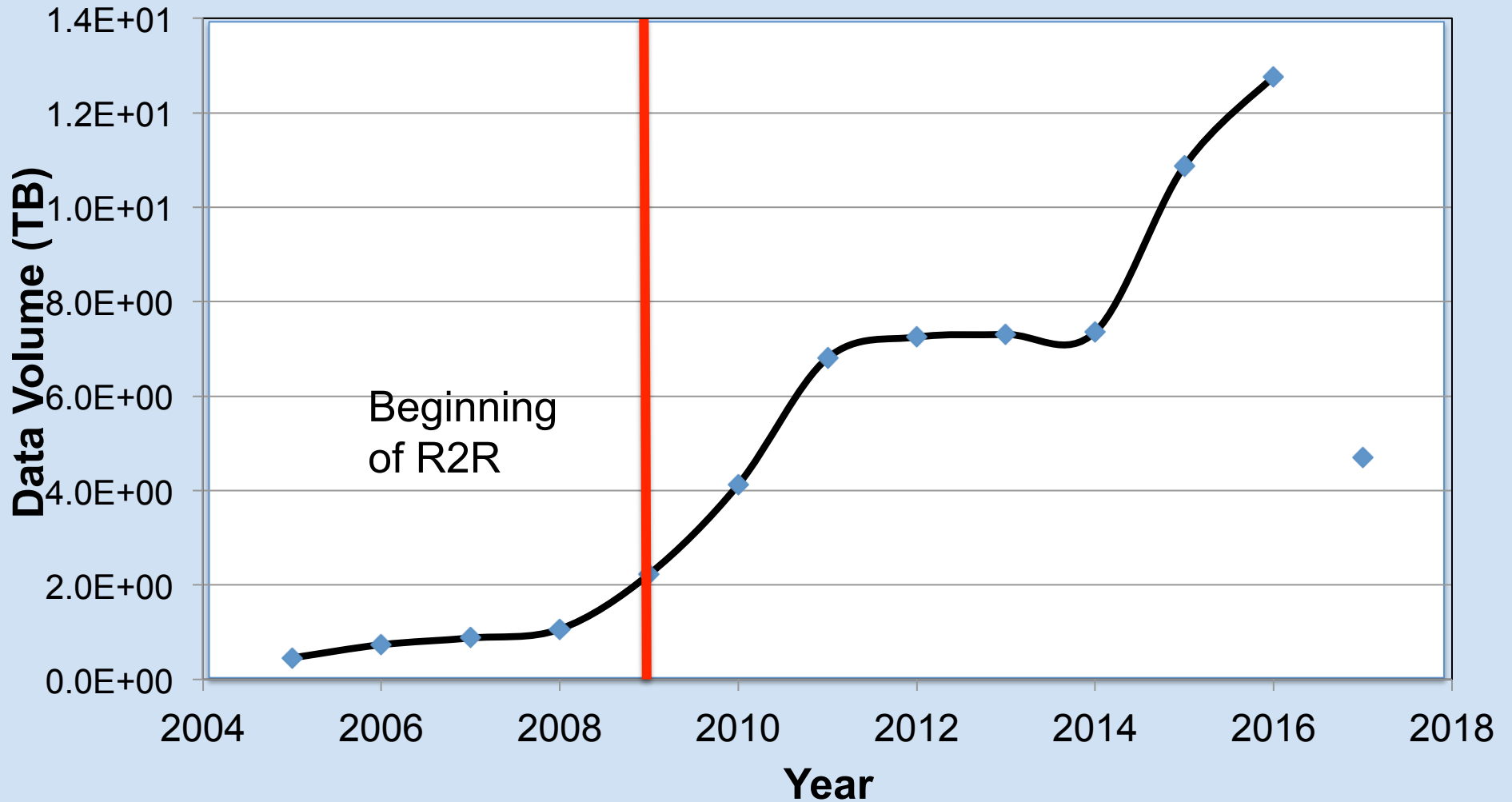
Vessel	# Cruises	Total	Affiliation
R/V Neil Armstrong	15	18	WHOI/UT/PSU/FFI
R/V Atlantis	6	14	OSU/Duke/UIUC/UW, WYOMING
R/V Endeavor	4	15	WHOI/BIOS/UT
R/V Roger Revelle	1	10	UW
R/V Hugh R. Sharp	2	9	WHOI/UW
R/V Sikuliaq	10	14	UW/OSU/UDEL/UAF/USF/UMD_CES



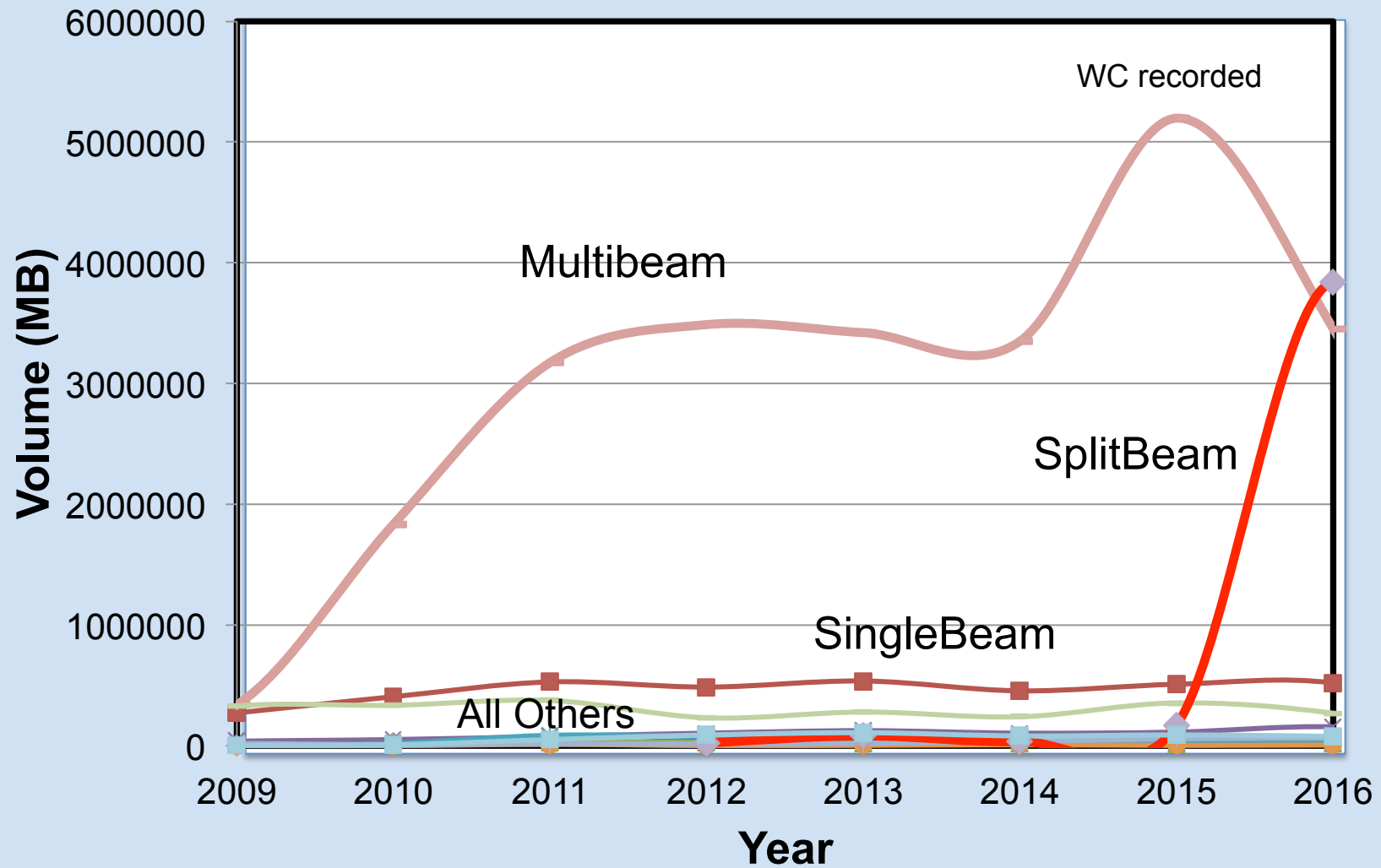
Status: Cruises Per Year Archived



Data Volumes: 7X Increase



Data Volumes By Sensor



UNOLS Data to NCEI CO

UNOLS Survey Vessels

WCSD Archived

CY2016: 4.03 TB

CY2015: 1.08 TB

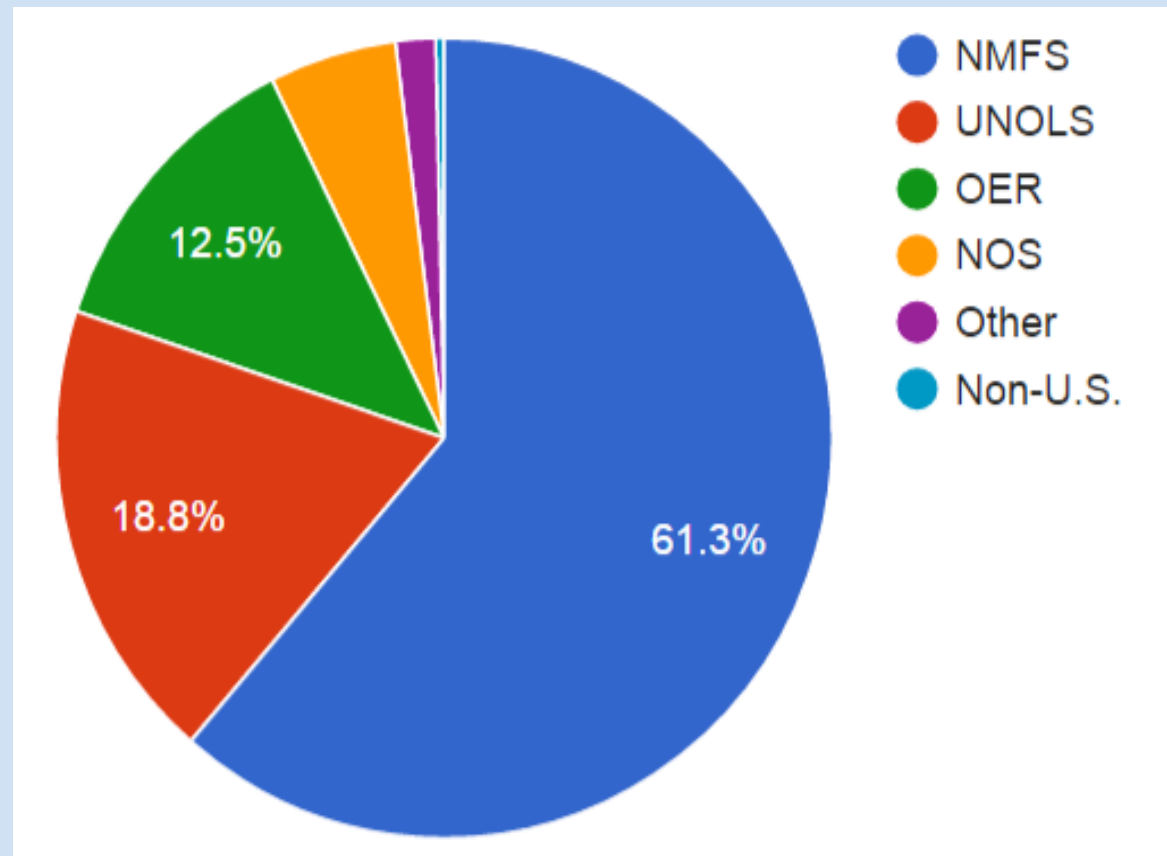
WCSD Requested

CY2016: 2.67 TB

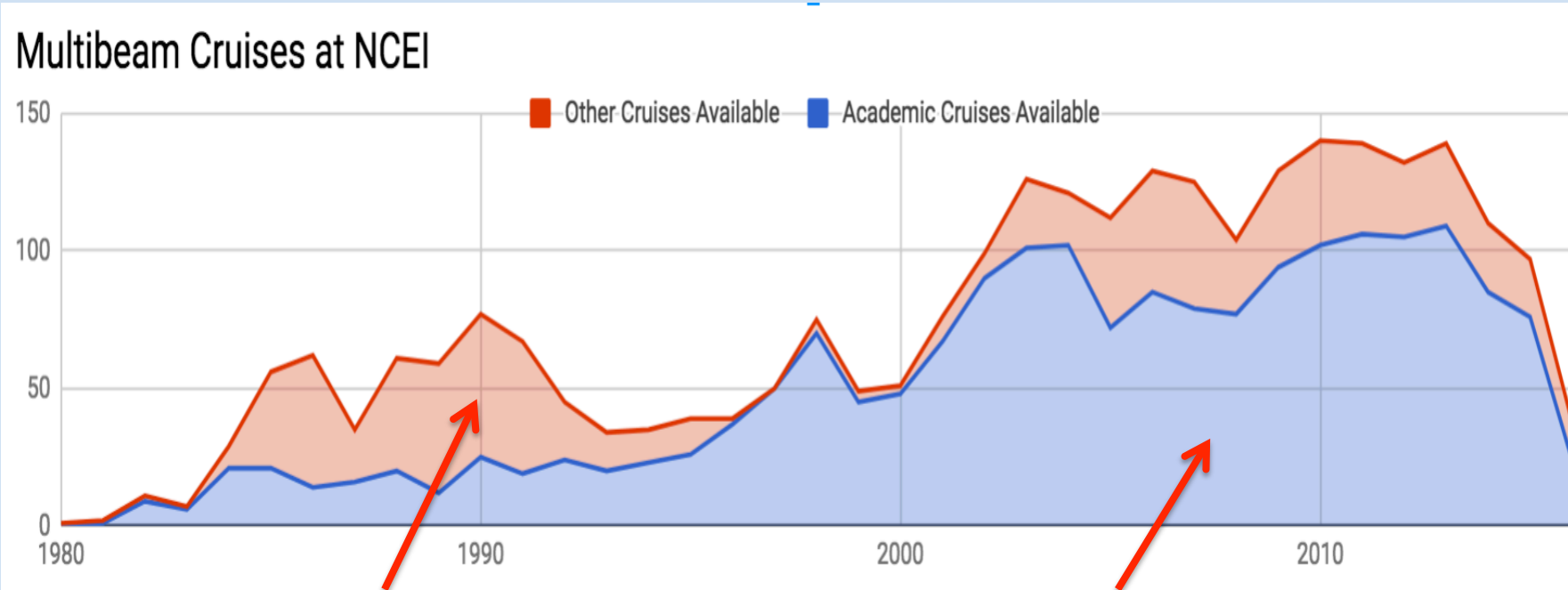
CY2015: 685 GB

WCSD Data archived by source

(as of April 2017)



Multibeam Cruises at NCEI



NOAA/Internat/
Other

From US
Academic Fleet



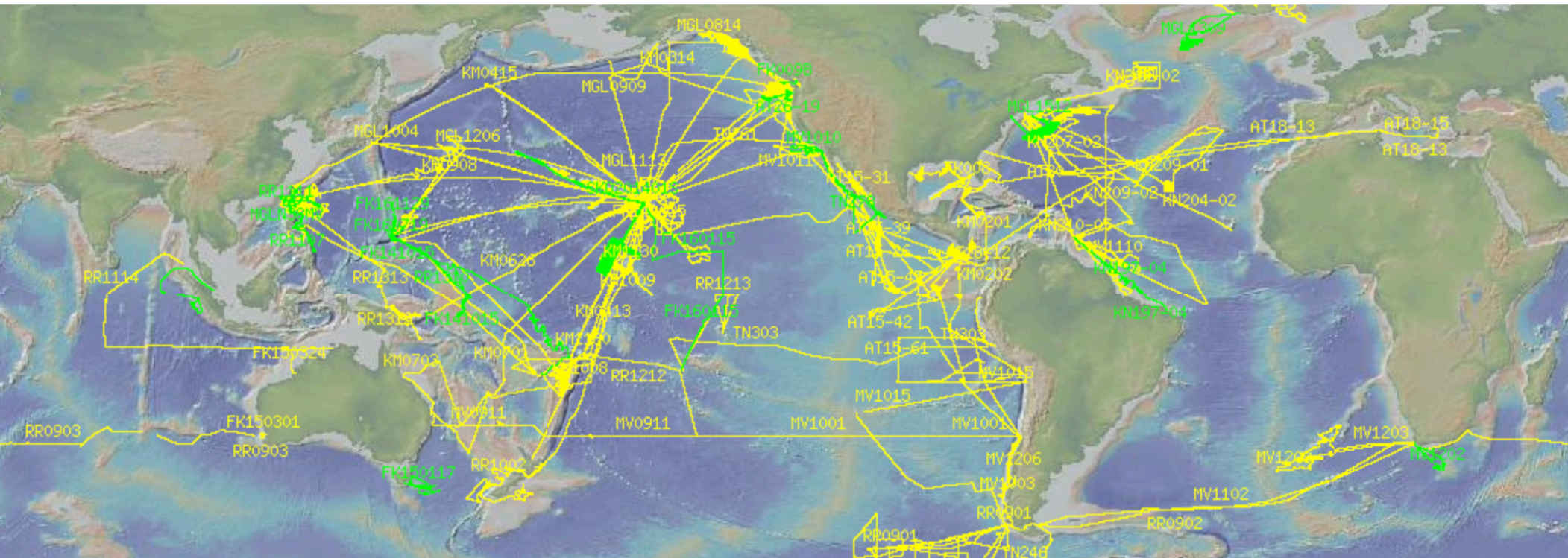
Impacts: Contributing to Global Syntheses

- 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)

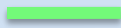


Data Syntheses

Global Multi-Resolution Topography (GMRT) Synthesis



Above: Shiptracks for Multibeam data distributed through R2R.

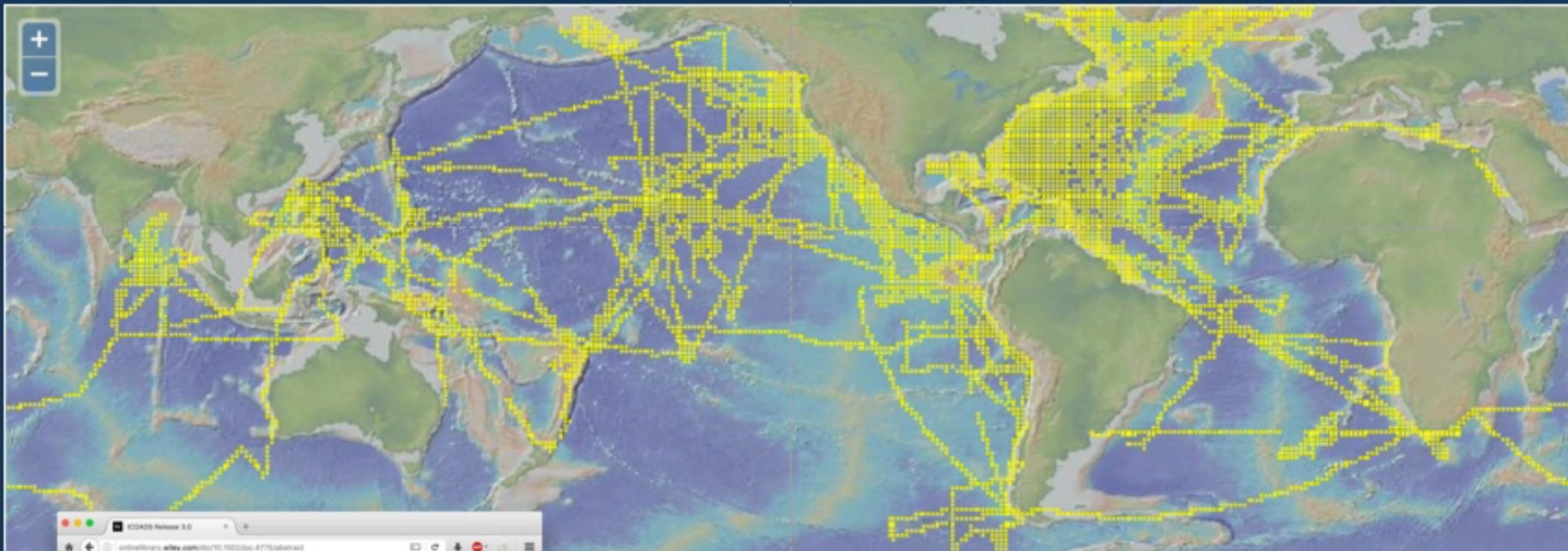
 *New cruises (26) processed since last UNOLS Annual Meeting report (Nov. 2016)*

GMRT is data service of IEDA



Data Syntheses (cont)

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



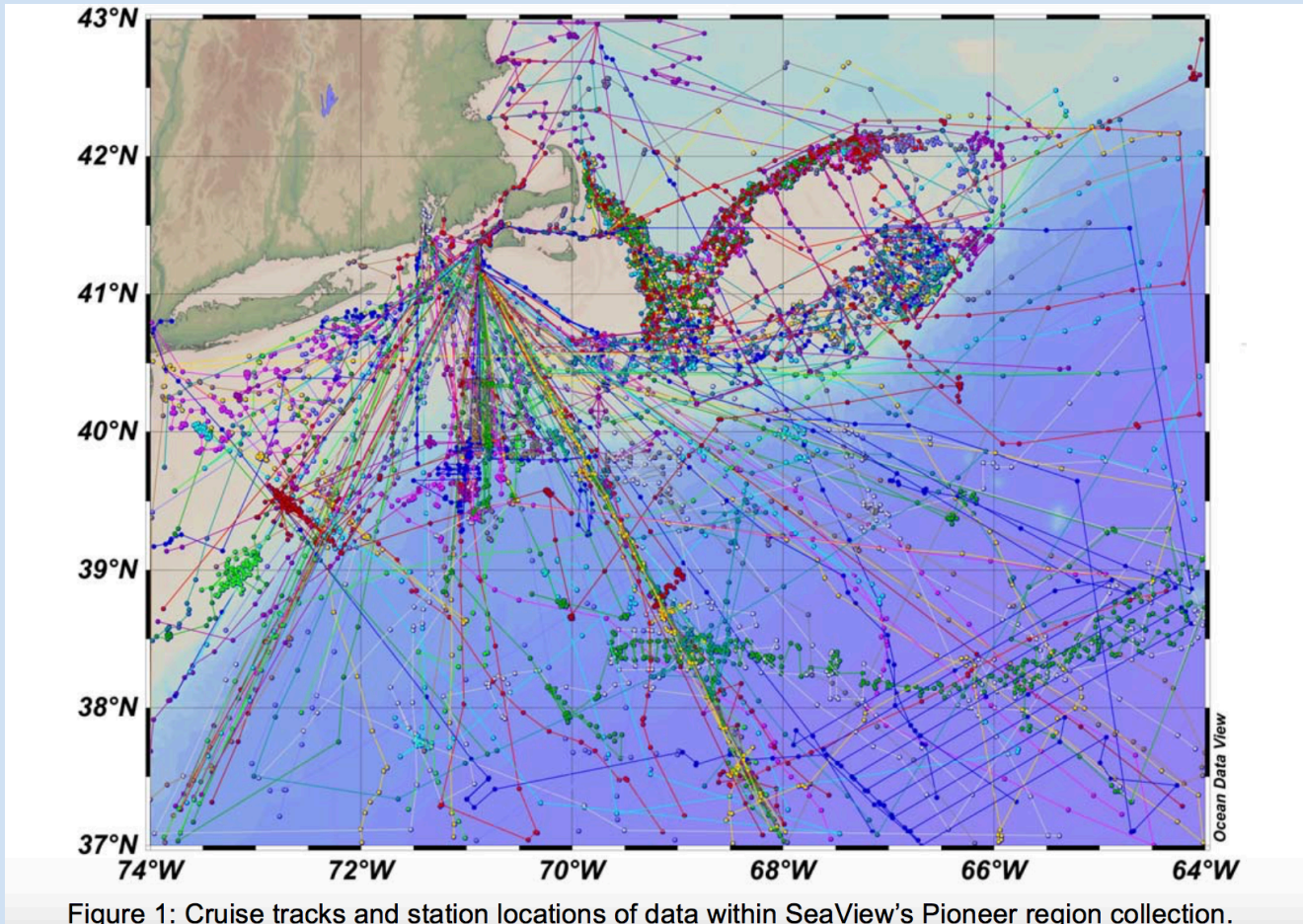
Shipboard Automated Meteorological and Oceanographic System (SAMOS)



Collaborations



EarthCube

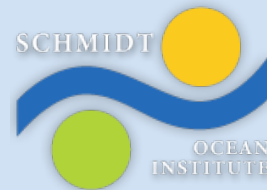
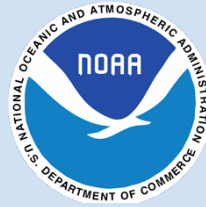


SeaView and R2R highlighted in article in "OOI Special Issue" of Oceanography

SeaView project: Thematic data collections , organized+formatted



Acknowledgements



info@rvdata.us

