



Rolling Deck to Repository (R2R)

Current Status and New Developments

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R2R Mission

To ensure the long-term preservation and broad distribution of the environmental sensor data routinely acquired on expeditions of the U.S. academic research fleet



R2R Services

R2R Services:

- Publish master cruise catalog
- Organize, archive, and disseminate original underway data and documents
- Assess data quality
- Create post-field data products
- Support at-sea event logging



Sensor Data Sets at R2R

Geophysics:

Echosounder* - 1,475
Gravimeter* - 846
Magnetometer* - 236
Multibeam - 1,616

Meteorology:

Anemometer* - 507
Barometer* - 231
Hygrometer* - 293
Radiometer* - 1,099
Rain Gauge* - 285

Complex Logging systems:

Acquisition Systems - 2,453
Meteorological Stations* - 1,665

Navigation:

GNSS/INS* - 5,232
Gyrocompass* - 1,634
Speed Log* - 362

Engineering:

Winch - 710
Timeserver - 36
Flowmeter - 87

Oceanography:

ADCP - 2,510
CTD* - 2,034
Fluorometer - 871
Oxygen - 20
pCO2 - 88
Sound speed - 232
Temperature* - 490
Transmissometer - 234
TSG* - 1,508
XBT/XCTD - 584


Underlined - QA performed by R2R
* - data products generated by R2R
Data - sent to NCEI for archiving

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With their global reach, R2R provides a range of services, from on-site installation and commissioning, to data management and analysis, to help you get the most out of your R2R system.

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SEARCH (0/11)
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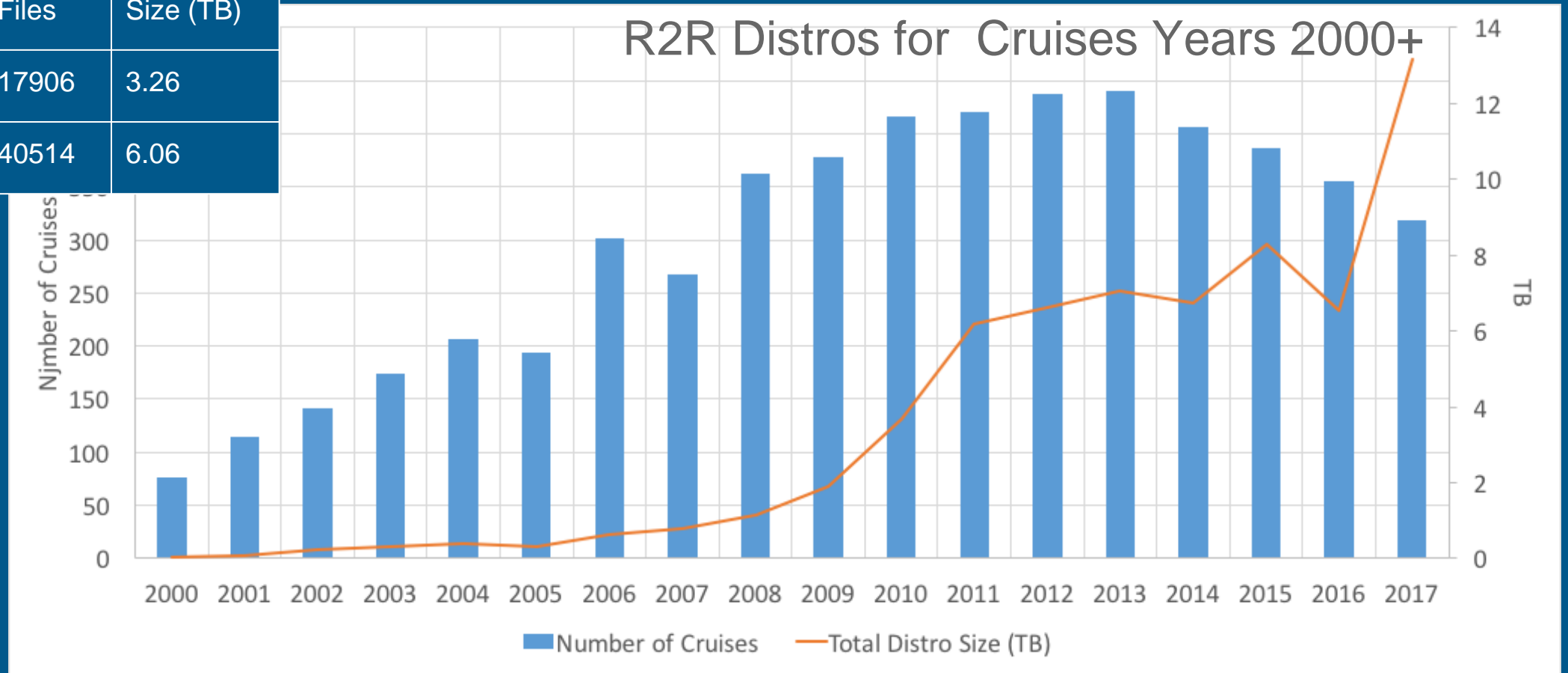
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- @R2RData

R2R Data Volumes

EK80 Data Volume

Cruise Year	Files	Size (TB)
2016	17906	3.26
2017	40514	6.06



Documenting Time Sources

- Fleet wide survey of time servers
 - 12 vessels use time servers
 - 4 vessels do not use time servers
 - 4 vessels did not respond to the survey
- 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



Time Sources are important! Contact R2R to include your

Time Sources

Vessel	Device Type	Make	Model
Atlantis	timeserver	OceanWaveS	ES-185E/NTP
Atlantis	timeserver	OceanWaveS	ES-185E/NTP
F.G. Walton Smith	timeserver	Microsemi	SyncServer S200
Healy	timeserver	Microsemi	SyncServer S350
Healy	timeserver	Microsemi	SyncServer S350
Hugh R. Sharp	timeserver	Spectracom	SecureSync
Ka`imikai-O-Kanaloa	timeserver	Symmetricom	NTS-100i
Ka`imikai-O-Kanaloa	timeserver	Symmetricom	NTS-100i
Kilo Moana	timeserver	Spectracom	Netclock S
Kilo Moana	timeserver	Spectracom	Netclock S
Marcus G. Langseth	timeserver	Microsemi	SyncServer S350
Marcus G. Langseth	timeserver	Symmetricom	TymServer
Neil Armstrong	timeserver	OceanWaveS	ES-185E/NTP
Oceanus	timeserver	Microsemi	SyncServer S350
Roger Revelle	timeserver	Endrun	Sonoma
Roger Revelle	timeserver	Trimble	SPS351
Sally Ride	timeserver	Endrun	Sonoma
Sally Ride	timeserver	Trimble	BD982
Sikuliaq	timeserver	Microsemi	SyncServer S350

R2R
ROLLING DECK TO REPOSITORY

Vessel
Oceanus

Device
Device Type: gnss
Device Make: Ashtech
Device Model: ADU5
NOAA Docucomp id:
NERC sensor term: <http://vocab.nerc.ac.uk/collection/L22/current/TOOL0389/>

Device Time Source
Make: com.microsemi
Model: SyncServer S350

Format
Fileset processing level: Raw
Fileset format id: 100011
Fileset format description: DAS: NOAA SCS: external clock + NMEA GGA
Fileset format document: [format-nav2.txt](#)

Make and model documented for 19 time servers across 12 UNOLS vessels

Time source information within the R2R database is linked to individual devices upon Vessels.

Device format documentation available at www.rvdata.us.

Contributions to Global Data Repositories and Collections

- ADCP: NOAA Global Ocean Currents Database
- TSG: NOAA Global Thermosalinograph Database:
- CTD & XBT: NOAA World Ocean Database
- Multibeam
 - NSF IEDA Global Multi-Resolution Topography (GMRT) synthesis
 - IHO Data Center for Digital Bathymetry via NCEI
- Real-time MET (SAMOS): International Comprehensive Ocean-Atmosphere Data Set (ICOADS)



Legacy Data Rescue

- R/V Seward Johnson (Harbor Branch) - 263 Cruises dating back to 1994
- R/V Endeavor (URI) - 178 Cruises Dating back to 1995



- Found cruise distros on hard drives and DVDs
- Recovered and cataloged for future inventorying
- Discovery of cruise metadata in process

Cloud Service Test Case

Schmidt Ocean Institute provided funding to test the feasibility of running R2R Processes on Google Cloud Platform



Steps:

- Multibeam QA was selected for the test case
- Server, network and security was configured
- Software was installed and adapted as necessary; including the installation of GMT and MBSystem in the cloud
- Comparison tests were made on both local and cloud servers using direct and bucket storage

Conclusion :

Running on cloud with direct storage was over 30% faster than on local systems



R2R Is Here To Help

Contact us with your questions or comments :

- In person during RVTEC/IMARTECH
- By email: info@rvdata.us

Visit www.rvdata.us

 [@R2RData](https://twitter.com/R2RData)

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Lamont-Doherty Earth Observatory
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Providing access to and ensuring
the preservation of national
oceanographic research data.

