



*Coordinating and Combining
Data Processing, Movements,
and Storage - in the US
Academic Research Fleet (ARF)*

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Regional Class Research Vessel Project

Oregon State University

CI4MF 2024

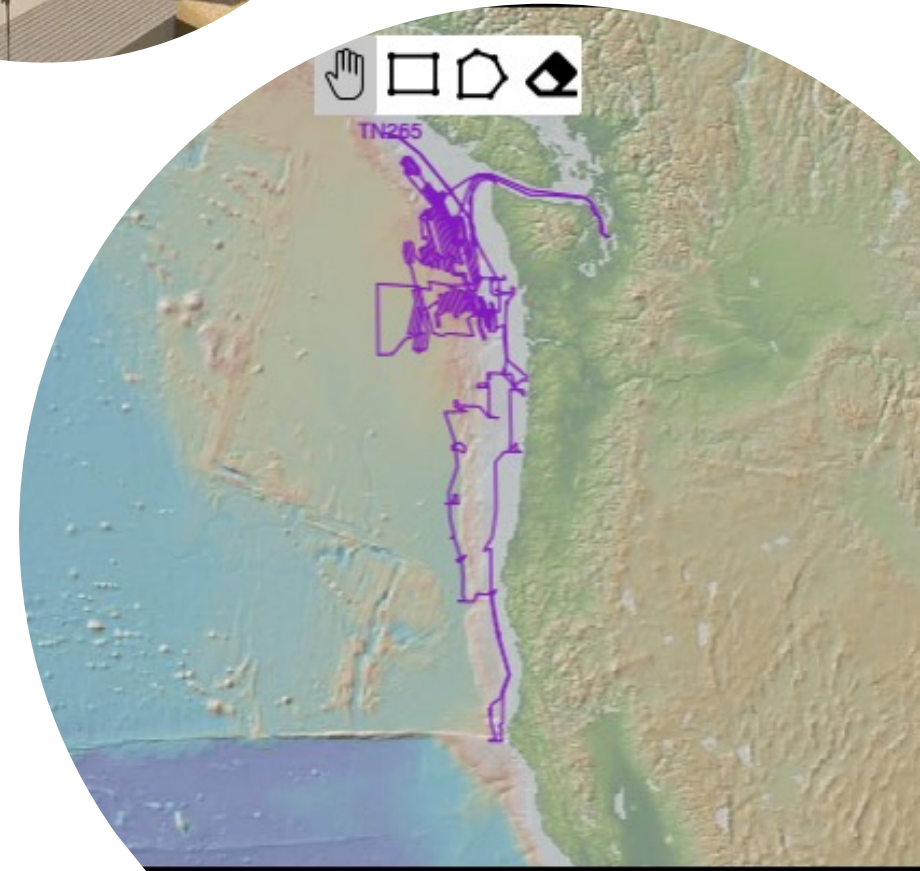


My Perspective as:

- Facility User 2002-2015
 - Active Tectonics,
 - Paleoseismology,
 - Seabed Mapping
- Facility Design & Construction
 - RCRV Project – 3 vessel build



Oregon State
University



Some Background About the ARF

The ARF is organized as a distributed laboratory system.

Coordination of facility access is managed by UNOLS

Its primary function is to provide platforms that can be used to conduct experimental research and explorations at-sea.

The ARF is not an Observing System per se, but ARF vessels are configured with resident scientific sensor equipment.



Underway Data -

All vessels collect data from a suite of resident instrumentation:

- Meteorologic/Atmospheric
- Surface Seawater Properties
- Seawater Profile Data
- Acoustic Seabed and Sub-seabed Data
- Acoustic Mid-water Data

Post-Cruise delivery via Hard Drive, SFTP, Cloud, Globus

The screenshot displays the R2R website interface. At the top right is a 'Contact Us' link. The main header features the R2R logo with the tagline 'ROLLING DECK TO REPOSITORY' and a navigation menu with links for 'SEARCH', 'BROWSE VESSELS', 'DATA TYPES & PRODUCTS', 'COMMUNITY', and 'ABOUT R2R'. On the left side, there are search boxes for 'Search cruise...', 'Search device...', and 'Search keyword...', along with a sidebar menu containing 'QA Dashboard', 'Operator Dashboard', 'API', 'Publications', and 'Best Practices'. The central graphic is a circular flow diagram with 'R2R' in a large blue circle. Arrows indicate a clockwise cycle: 'Data & Documentation' (from a ship icon) to 'Assessment & Feedback' (to 'Device Specialists'), then to 'Assembly Centers', then to 'Long-Term Archives', and finally back to 'Data & Documentation'. Below this diagram is a statistics table:

VESSELS	RESEARCH CRUISES	DATA SETS ARCHIVED	DOWNLOADABLE FILES
50	9,260	52,003	18,784,852

The bottom section of the page is a teal footer with the R2R logo and tagline on the left, and four columns of links: 'SEARCH CRUISES DATA TYPES & PRODUCTS', 'COMMUNITY' (with sub-links for Stakeholders, Chief Scientists, Ship Operators, and Developers), and 'ABOUT R2R' (with sub-links for Mission, Quality Assessment, Event Log, Real-Time Data, Policies, Technical Details, and Privacy). Below the footer are logos for 'SUPPORTED BY' organizations: NSF, NOAA, the Office of Naval Research, and the Schmidt Ocean Institute. The Ocean Exploration Trust logo is also present. At the very bottom, a copyright notice states: 'Copyright © 2018 Rolling Deck to Repository (R2R). All Rights Reserved. | Contact Us' and 'Hosted at the Lamont-Doherty Earth Observatory of Columbia University'.

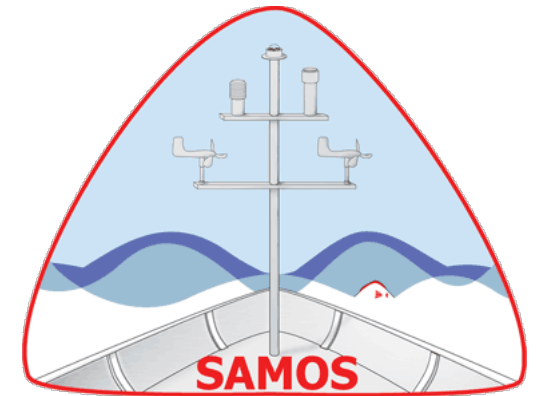
Continuous Observation Data – Subset of Underway



Meteorologic/Atmospheric

Binned (reduced, 1min) and emailed daily to SAMOS

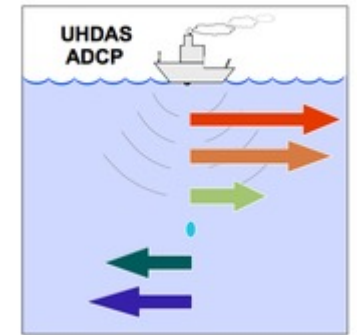
Raw data to R2R – post cruise terrestrial transfer



Acoustic Doppler Current Profilers

Reduced to graphics and statistics, emailed daily to UHDAS

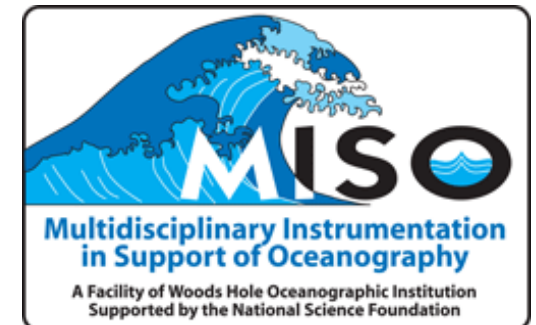
Raw data to R2R – post cruise terrestrial transfer



Gravimeters

Local raw data storage. No ship to shore exchange.

Raw data delivered to R2R – post cruise terrestrial transfer



PI Data-

In addition to the resident instrument systems (underway data) ARF vessels also collect data and observations from equipment and individuals from the visiting science teams.

This data generally does not end up in the archival pipeline managed by the vessel operator.

Instead, in most circumstances, PI's maintain management responsibility for the data they generate on from their own independent systems.



Bring Your Own D



Enabling Technology / Paradigm Change



RV Endeavor
CORIOLIX
 Tue Oct 17 2023 23:58:47 UTC
 Last Nav Data Received
 41.49243°, -71.41868° Tue Oct 17 2023 23:58:46 UTC
 shoreside

Home Logout Cruise Tools Cruise Chart Sensor Plots Status Sensors Data Documents Settings My Account About

CORIOLIX

Cruise Observations
 Real-time Interface &
 Open Live Information Exchange

SCIENCE FROM SHIP TO SHORE

A real-time system supporting
 oceanographic research

*real-time data access & visualization
 maintenance and event logs
 quality controlled data
 remote participation
 notification services*

Where to start?

Sensor Status

Monitor sensor systems for real-time state of health

Time-series

View real-time data from shipboard sensors

Cruise Chart

Visualize underway data on a map; review and plan cruise tracks

Create Account

Create & manage your account

Data Access

Access real-time data and data products via download or 3rd party client tools

Documents

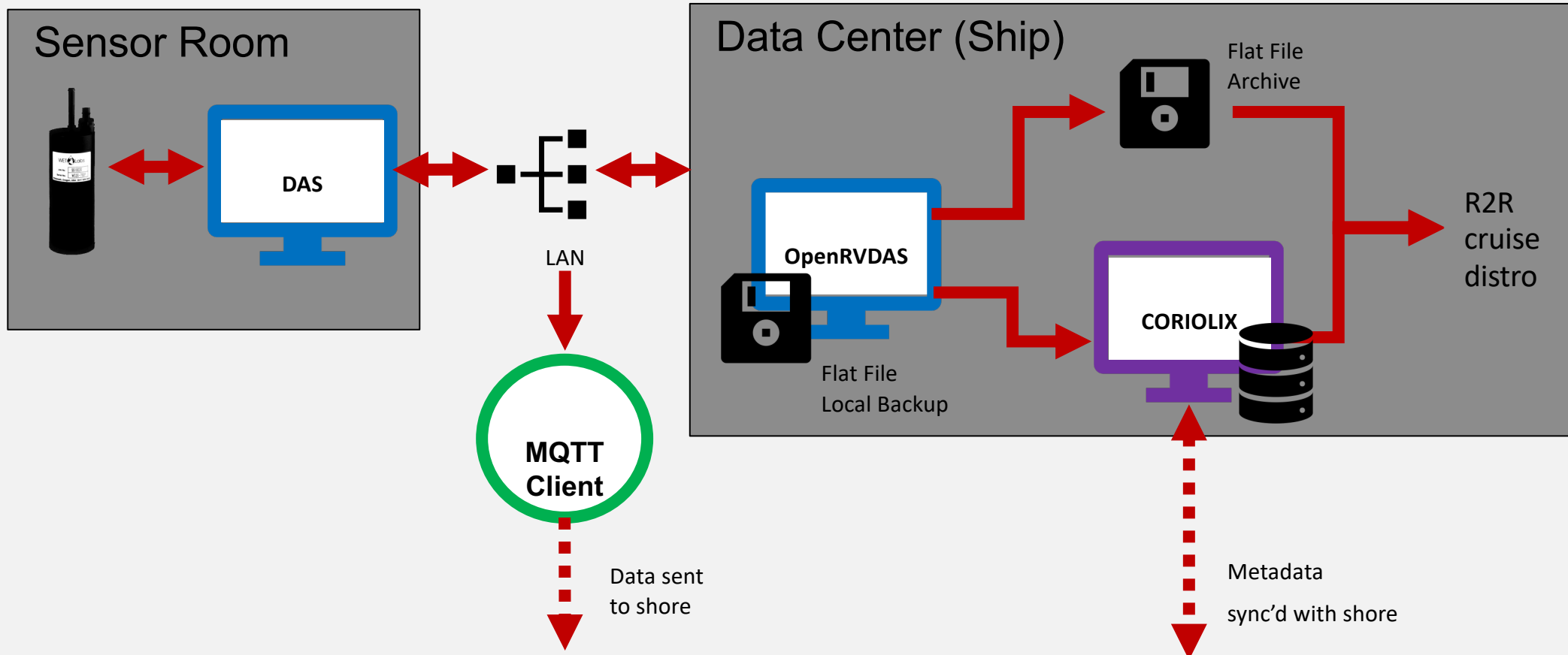
Catalog and explore manuals, calibration files, and other metadata

Remote Participation

Observational and Underway Data

Operational Feedback Scientific Feedback

Shipside Overview



Shoreside Overview

