R2R Shipboard Sampling Event Logger
An Update for RVTEC 2010

Andrew Maffei Rolling Deck to Repository Project
Woods Hole Oceanographic Institution

15 November 2010
RVTEC Annual Meeting
Bermuda

R2R and the scientific sampling event log (history)

- NSF and other US federal agency program managers are under increasing pressure to ensure access to data from publicly funded research.
- NSF funded R2R as a small pilot study in Fall 2008
- The event log was identified as one of 4 initial products of an R2R enabled cruise.
- R2R project developed a prototype event logger system in Fall 2008, building on experience gained during US JGOFS and US GLOBEC programs and in continuing use in BCO-DMO
- Prototype Event Logger presented at RVTEC 2009, feedback was solicited.
- Modified Event Logger per RVTEC 2009 feedback and deployed on five test cruises during 2010, refining it as we proceeded
- Now reporting back to RVTEC 2010 and soliciting more feedback.

R2R Event Logger System is not . . .

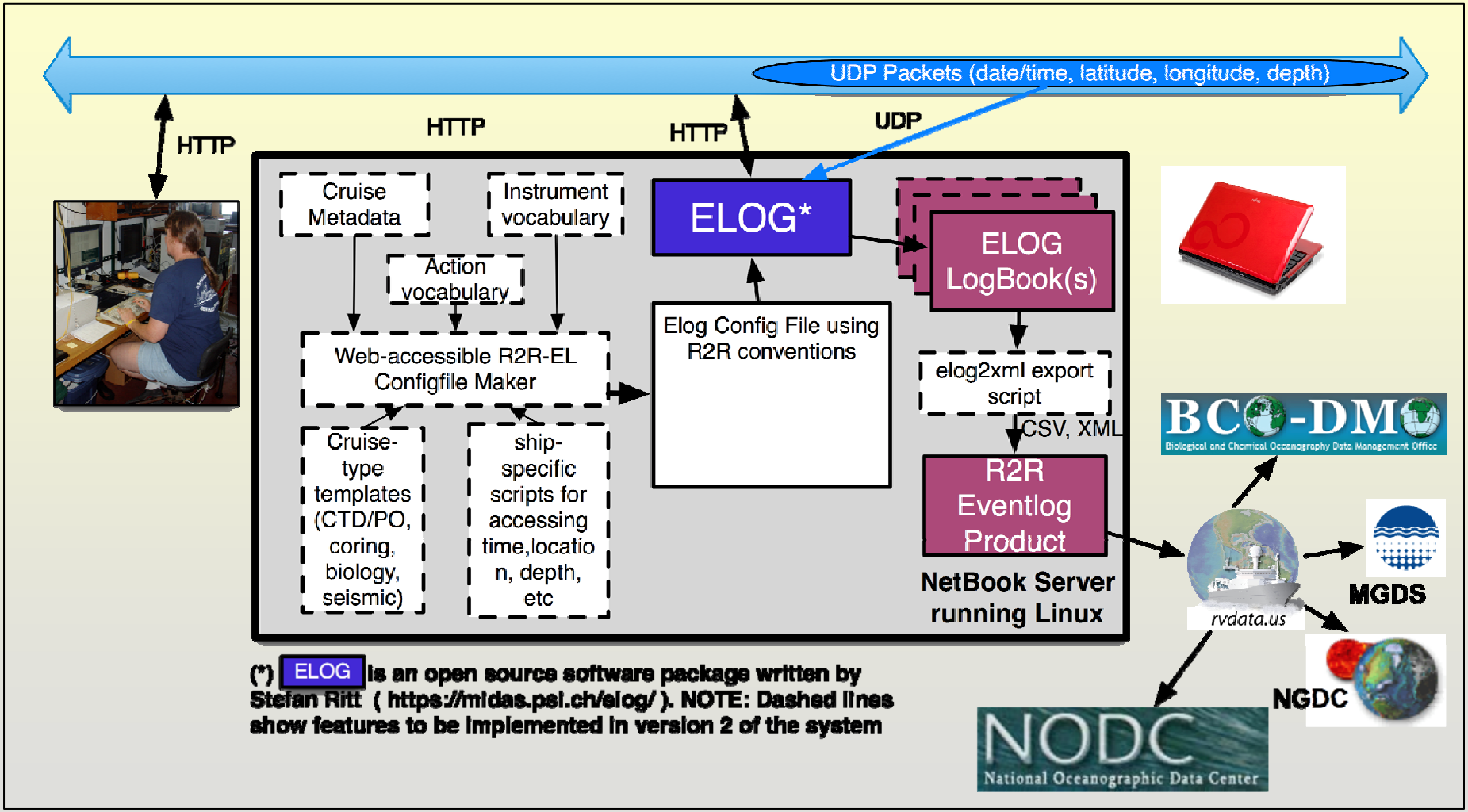
- Mandatory
- A replacement for existing event loggers

- If the R2R event logging system is deployed on a vessel, it is the responsibility of the science party and not the shipboard technician to enter information in the event log during the cruise.

ELOG software is foundation for final R2R Event Log

- Earlier Prototype Evaluation
  - Conversations at RVTEC 2009 about prototype presented
  - Deeper look at ELOG and LOGBOEK
- Some reasons we switched to ELOG
  - Met existing requirements
  - Existing expertise among existing UNOLS ship operators
  - More widely-used open-source package made robust through deployment in wide array of application areas
  - Runs on Linux, Mac, and Windows
  - **Extremely** configurable
  - Integrated HTTP server

Current Event Logger Architecture

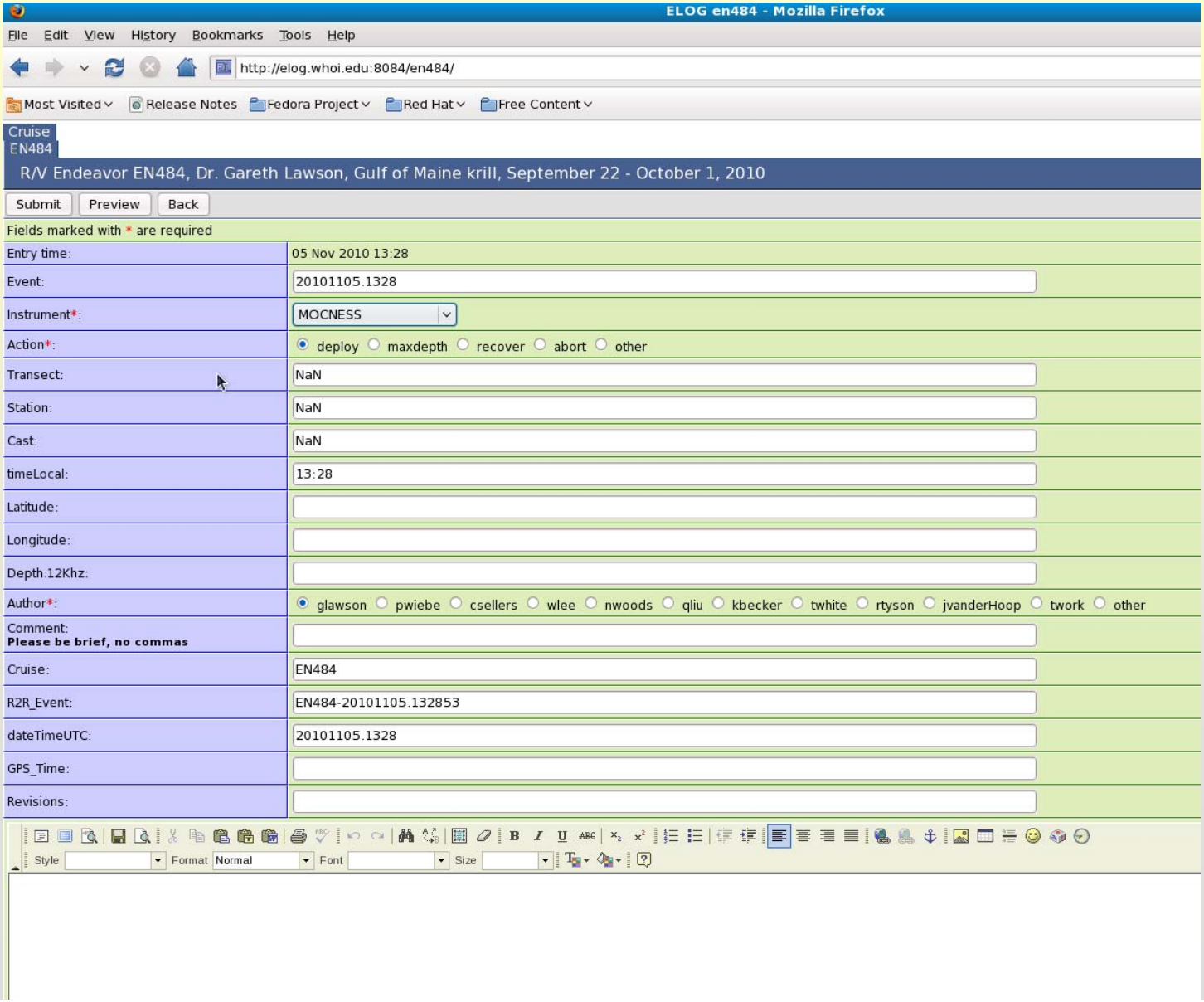


2010 Test Cruises

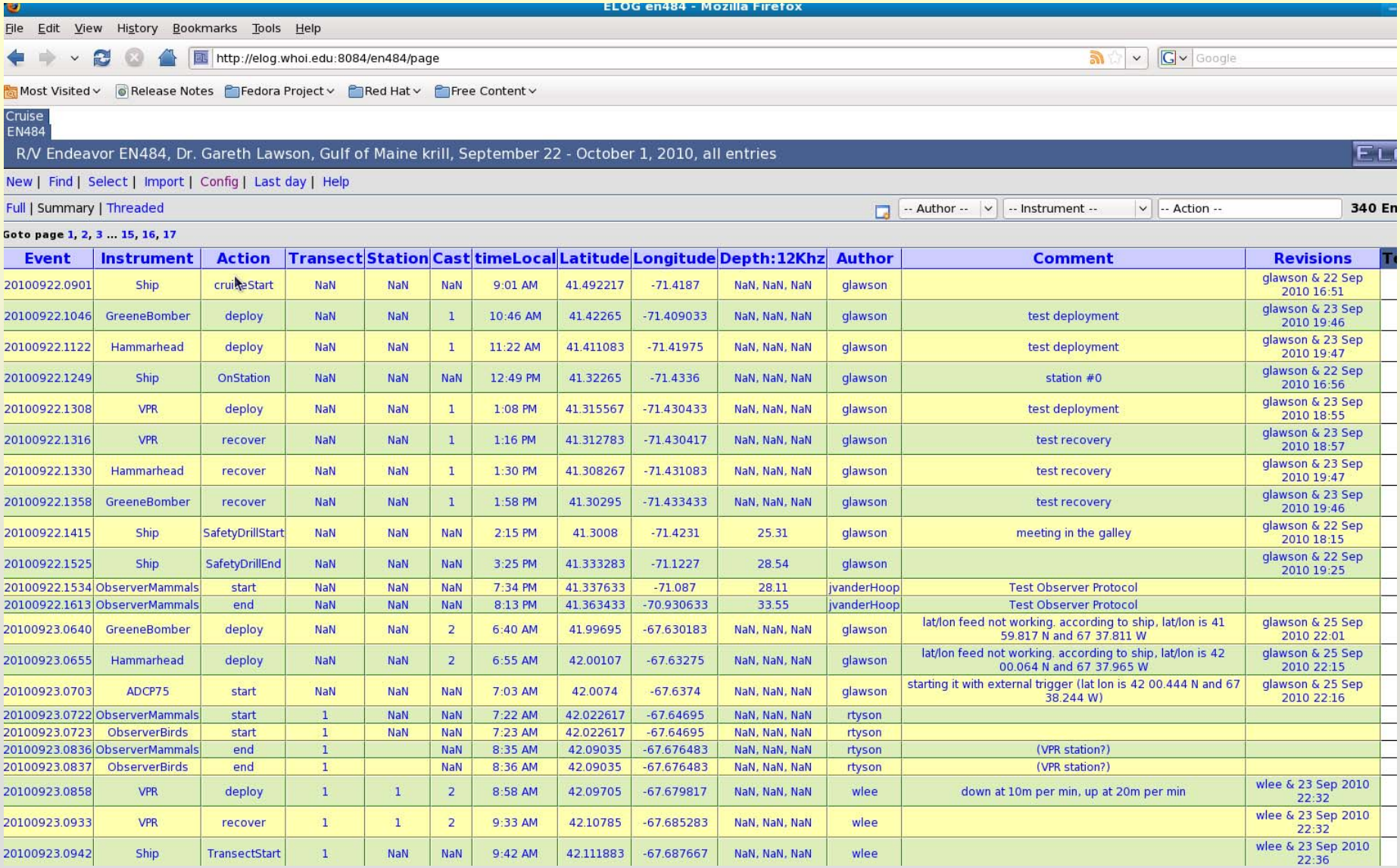
- Laura Stolp, Cyndy Chandler, Tobias Work.
- Pre and Post cruise interviews with scientists to build ELOG configfile and document lessons learned afterwards
- Scientists are anxious to use the Event Logger “now”
- Thanks to techs and science involved so far for helping us!

R2R Cruise ID	Ship	Dates	Chief Scientist	Affiliation	Type of Cruise
OC462	R/V Oceanus	2010/05/20 to 2010/05/30	Chris Obenhaus	NOAA	Dart Mooring
OC467	R/V Oceanus	2010/07/29 to 2010/08/02	Dennis McGillicuddy	WHOI	CTD/Floats
OC468-02	R/V Oceanus	2010/08/21 to 2010/09/02	Joseph Montoya	GIT	CTD/MOC
EN484	R/V Endeavor	2010/10/22 to 2010/10/01	Gareth Lawson	WHOI	CTD/MOC
EN487	R/V Endeavor	2010/10/27 to 2010/11/05	Gareth Lawson	WHOI	CTD/MOC

Event Logger Entry Screen



Event Logger Entry Screen



Event	Instrument	Action	Transect	Station	Cast	timeLocal	Latitude	Longitude	Depth:12Khz	Author	Comment	Revisions
20100922.0901	Ship	cruiseStart	NaN	NaN	NaN	9:01 AM	41.492217	-71.4187	NaN, NaN, NaN	glawson		glawson & 22 Sep 2010 16:51
20100922.1046	GreeneBomber	deploy	NaN	NaN	1	10:46 AM	41.42265	-71.409033	NaN, NaN, NaN	glawson	test deployment	glawson & 23 Sep 2010 19:46
20100922.1122	Hammarhead	deploy	NaN	NaN	1	11:22 AM	41.411083	-71.41975	NaN, NaN, NaN	glawson	test deployment	glawson & 23 Sep 2010 19:47
20100922.1249	Ship	OnStation	NaN	NaN	NaN	12:49 PM	41.32265	-71.4336	NaN, NaN, NaN	glawson	station #0	glawson & 22 Sep 2010 16:56
20100922.1308	VPR	deploy	NaN	NaN	1	1:08 PM	41.315567	-71.430433	NaN, NaN, NaN	glawson	test deployment	glawson & 23 Sep 2010 18:55
20100922.1316	VPR	recover	NaN	NaN	1	1:16 PM	41.312783	-71.430417	NaN, NaN, NaN	glawson	test recovery	glawson & 23 Sep 2010 18:57
20100922.1330	Hammarhead	recover	NaN	NaN	1	1:30 PM	41.308267	-71.431083	NaN, NaN, NaN	glawson	test recovery	glawson & 23 Sep 2010 19:47
20100922.1358	GreeneBomber	recover	NaN	NaN	1	1:58 PM	41.30295	-71.433433	NaN, NaN, NaN	glawson	test recovery	glawson & 23 Sep 2010 19:46
20100922.1415	Ship	SafetyDrillStart	NaN	NaN	NaN	2:15 PM	41.3008	-71.4231	25.31	glawson	meeting in the galley	glawson & 22 Sep 2010 18:15
20100922.1525	Ship	SafetyDrillEnd	NaN	NaN	NaN	3:25 PM	41.333283	-71.1227	28.54	glawson		glawson & 22 Sep 2010 19:25
20100922.1534	ObserverMammals	start	NaN	NaN	NaN	7:34 PM	41.337633	-71.087	28.11	jvanderHoop	Test Observer Protocol	
20100922.1613	ObserverMammals	end	NaN	NaN	NaN	8:13 PM	41.363433	-70.930633	33.55	jvanderHoop	Test Observer Protocol	
20100923.0640	GreeneBomber	deploy	NaN	NaN	2	6:40 AM	41.99695	-67.630183	NaN, NaN, NaN	glawson	lat/lon feed not working. according to ship, lat/lon is 41 59.817 N and 67 37.811 W	glawson & 25 Sep 2010 22:01
20100923.0655	Hammarhead	deploy	NaN	NaN	2	6:55 AM	42.00107	-67.63275	NaN, NaN, NaN	glawson	lat/lon feed not working. according to ship, lat/lon is 42 00.064 N and 67 37.965 W	glawson & 25 Sep 2010 22:15
20100923.0703	ADCP75	start	NaN	NaN	NaN	7:03 AM	42.0074	-67.6374	NaN, NaN, NaN	glawson	starting it with external trigger (lat lon is 42 00.444 N and 67 38.244 W)	glawson & 25 Sep 2010 22:16
20100923.0722	ObserverMammals	start	1	NaN	NaN	7:22 AM	42.022617	-67.64695	NaN, NaN, NaN	rtyson		
20100923.0723	ObserverBirds	start	1	NaN	NaN	7:23 AM	42.022617	-67.64695	NaN, NaN, NaN	rtyson		
20100923.0836	ObserverMammals	end	1		NaN	8:35 AM	42.09035	-67.676483	NaN, NaN, NaN	rtyson	(VPR station?)	
20100923.0837	ObserverBirds	end	1		NaN	8:36 AM	42.09035	-67.676483	NaN, NaN, NaN	rtyson	(VPR station?)	
20100923.0858	VPR	deploy	1	1	2	8:58 AM	42.09705	-67.679817	NaN, NaN, NaN	wlee	down at 10m per min, up at 20m per min	wlee & 23 Sep 2010 22:32
20100923.0933	VPR	recover	1	1	2	9:33 AM	42.10785	-67.685283	NaN, NaN, NaN	wlee		wlee & 23 Sep 2010 22:32
20100923.0942	Ship	TransectStart	1	NaN	NaN	9:42 AM	42.111883	-67.687667	NaN, NaN, NaN	wlee		wlee & 23 Sep 2010 22:36

Version 1 – Current output is CSV plus config file

```
"Message
ID","Date","Event","Instrument","Action","Transect","Station","Cast","timeLocal","Latitude","Longitude","Seafloor","Author","PI
_name","Comment","Cruise","R2R_Event","dateTimeUTC","GPS_Time","Revisions"
1,Tue  26 Oct 2010 12:35:11 +0000,"20101026.0834","Ship","Other","NaN","NaN","NaN","08:34","NaN, NaN, NaN","NaN, NaN,
NaN","NaN","other","NaN","test ","EN487","EN487-20101026.123508.001","20101026.1235","NaN, NaN, NaN",
2,Thu  28 Oct 2010 12:55:58 +0000,"20101028.0855","Ship","cruiseStart","NaN","NaN","NaN","08:55"," 41.492217","
-71.418717","NaN","cSellers","NaN",,"EN487","EN487-20101028.125558.001","20101028.1255","2010/10/28 12:55:56",
3,Thu  28 Oct 2010 23:03:54 +0000,"20101028.1903","Hammarhead","start","NaN","NaN","1","19:03"," 41.967450","
-70.304217","NaN","wLee","qLavery","calibration - bar in hole
1","EN487","EN487-20101028.230354.001","20101028.2303","2010/10/28 23:03:53"," & 28 Oct 2010 23:04 & 29 Oct 2010 07:05 & 29 Oct
2010 07:05 & 29 Oct 2010 10:10"
4,Fri  29 Oct 2010 00:57:48 +0000,"20101028.2057","Hammarhead","end","NaN","NaN","1","20:57"," 41.967317","
-70.299433","NaN","wLee","qLavery",,"EN487","EN487-20101029.005748.001","20101029.0057","2010/10/29 00:57:47"," & 29 Oct 2010
10:12"
5,Fri  29 Oct 2010 00:58:07 +0000,"20101028.20
-70.299383","NaN","wLee","qLavery","detached b
29 Oct 2010 07:04 & 29 Oct 2010 10:10"
6,Fri  29 Oct 2010 04:02:42 +0000,"20101029.00
-70.264300","NaN","cSellers","qLavery",,"EN487
2010 10:12"
7,Fri  29 Oct 2010 04:03:25 +0000,"20101029.00
-70.264200","NaN","cSellers","qLavery","reposi
2","EN487","EN487-20101029.040325.001","201010
8,Fri  29 Oct 2010 06:10:35 +0000,"20101029.02
-70.256433","NaN","cSellers","qLavery",,"EN487
2010 10:13"
9,Fri  29 Oct 2010 06:46:21 +0000,"20101029.02
-70.311100","NaN","cSellers","qLavery","reposi
lat=41.99132","EN487","EN487-20101029.064620.0
07:07 & 29 Oct 2010 07:08 & 29 Oct 2010 10:13"
10,Fri  29 Oct 2010 09:44:27 +0000,"20101029.0
```

```
# R2R eLog Scientific Sampling Event Logger config file for EN487
# pre-cruise test site: http://elog.whoi.edu:8085/en487/
# prep version 10/21/2010 12:00
#
Comment = R/V Endeavor EN487, Dr. Gareth Lawson, Gulf of Maine krill, 27 Oct - 5 Nov 2010
Subject = $cruise Science Event Log
Page title = $cruise Science Event Log

# Specify the attributes for this event log
# an event = Instrument + Action; e.g. event = a CTD cast is started
#
Attributes = Event, Instrument, Action, Transect, Station, Cast, timeLocal, Latitude, Longitude, Seafloor, Author, PI
dateTimeUTC, GPS_Time, Revisions

# which attributes to display in List view
# default is ID, Date, <full attribute list>
#
List display = Event, Instrument, Action, Transect, Station, Cast, timeLocal, Latitude, Longitude, Seafloor, Author,

# how to sort the list display
#
Sort attributes = Event

# Attribute control
# unlock these temporarily if it is necessary to edit the fields
#
Locked Attributes = Revisions, Cruise, Event, R2R_Event, dateTimeUTC, GPS_Time, Latitude,  Longitude, Seafloor
```

Controlled Vocabularies for Instrument and Action

Cruise Configuration		SeaDataNet		R2R			MGDS
R2R Eventlogger event-type = Instrument	**Available Eventlogger activity-types=Action**	SeaDataNet L221 (EntryTerm)	SeaDataNet L05 (EntryKey)	**R2R Device Type**	Top-level R2R	R2R Underway System Type	MGDS device_type
CTD911	deploy, maxdepth, recover, abort, other	L221/TOOL0035	CTD Profilers (130)	CTD	ctd_sbe911	CTD	CTD
ADCP75	deploy, recover, service, other			ADCP			
ADCP150	deploy, recover, service, other	L221/TOOL0062	current meters (114)	ADCP	adcp_rdi150	ADCP	Sonar:ADCP
ADCP300	deploy, recover, service, other		current meters (114)	ADCP	adcp	ADCP	Sonar:ADCP
biologyPump	startSample, stopSample			BiologyPump(*)	NONE	N/A	Sampler:Biology:Pump
Echosounder12	startLine, endLine, abortLine, sampleLine			Echosounder	echo	Echosounder	Sonar:Echosounder
Echosounder3.5	startLine, endLine, abortLine, sampleLine			Echosounder			
Fluorometer	startLine, endLine, abortLine, sampleLine		fluorometers (113)	Fluorometer	flow	Fluorometer	Fluorometer
GreeneBomber	deploy, recover, abort, other						
Hammerhead	deploy, recover, abort, other						
Handline	start, end, other						
mastCamera	start, end, other						

R2R event-type | R2R activity-type | Other Instruments

Characteristics for Version 1 and Version 2

	Version 1	Version 2
Intended Use	Limited to interested early adopters	All operators
Availability	Early 2011, need to be careful demand and scalability	Fall 2011 (?)
Deployment Type	“Ruby Red” Netbook package, customized scripts required.	Maybe(!) a s/w only dist. for mac, linux, windows
ELOG configfile generation	Hand built, customized via scientist interviews	Configfile-Maker run by science party
Instrument and Event Vocabularies	Maintained in Excel spreadsheet & mapped to SeaDataNet terms when poss.	Full mapping to Eurofleet FP7 using SeaVOX for governance
Final File Format	ELOG CSV Export and final ELOG config file	Looking seriously at collab w Eurofleet on file format
Documentation	Only ELOG docs available currently	R2R-specific documentation will be available on website

A live demo by Laura ….

We can use some help this week if you have the time…

Review/comment on info in the pre-release of our AGU 2010 Poster

Rolling Deck to Repository (R2R): Research Cruise Event Logging System Update

Poster OS13C-1244
AGU Fall Meeting
December 13, 2010

http://rvdata.us/

Authors: Andrew R. Maffei, Cynthia L. Chandler and Laura Stolp, Woods Hole Oceanographic Institution

rvdata.us

The Rolling Deck to Repository (R2R) project team members are working with ship operators, technicians and data managers at sea and ashore to improve data stewardship for the "routine underway data" collected by the US academic research fleet. One aspect of the R2R project is to develop a shipboard system for logging scientific sampling events from a cruise.

Which events are you going to log?

An event log entry will be made when a sampling device is:

- started or stopped
- deployed or recovered
- configured or calibrated
- affected by other operations

What types of information will be logged?

Every event entry will include at least these fields:

- a unique event ID
- date/time
- position (latitude and longitude)
- device name (proxy for instrument make and model)
- activity associated with the device
- person responsible for sampling event

Additional fields can be added as needed to fully document sampling events.

How will this system improve event logs?

Data entry will be automated as much as possible; date, time and position will be supplied by ship data systems. Standardization will be improved through the use of controlled vocabularies for some fields that require user input. The Event Logger system will include data quality review tools and allow people to sign-off on 'quality review' checks of entries.

How are you going to make it easy to use?

The Event Logger system will include documentation and the interface, designed to be intuitive, has been field testing and user feedback is included as part of the iterative design process.

What computing environment is required?

The Event Logger application is based on the Electronic Logbook Package by Stefan Ritt (https://midas.psi.ch/elog/). Version 1 of the R2R Event Logger system will be deployed on a standalone Netbook laptop which must be installed on the shipboard LAN. Version 2 will be designed for optional installation on existing shipboard servers.

Who is going to use the Event Logger?

Although anyone could enter an event, members of the scientific party will be responsible for entering events and ensuring accuracy and completeness of the log.

How will the event log be used ashore?

At the conclusion of a cruise, all events logged during the cruise will be exported to a file. The event log file is one of the standard R2R data products reported from every cruise and it will be available from *rvdata.us*. When included with cruise data sets and published in a database, the event log can become a powerful tool to facilitate integration of

The Rolling Deck to Repository Project acknowledges support from the

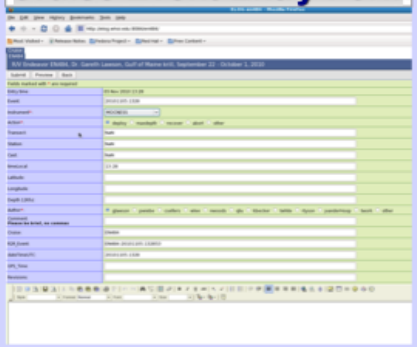
Abstract

Data gathered aboard research vessels coordinated by the University-National Oceanographic Laboratory System (UNOLS) represent an important component of the overall oceanographic data collection. The Rolling Deck to Repository (R2R) project aims to improve access to basic shipboard data and ultimately reduce the work required to provide that access. The ultimate vision of R2R is to assist in transforming the academic fleet into an integrated global observing system.

One of the coordinated subprojects within the R2R project is the development of a shipboard scientific event logging system that incorporates best practice guidelines, controlled vocabularies, a cruise metadata schema, and a scientific event log. The event log application will use new and existing components to generate a digital text file with a fleet-wide agreed upon format. A cruise event logging system enables researchers to record digitally all scientific sampling events and assign a unique event identifier to each entry. Decades of work conducted within large coordinated ocean research programs (JGOFS, GLOBEC, WOCE and RIDGE) have shown that creation of a shipboard sampling event log can facilitate greatly the ingestion of these data into oceanographic repositories and subsequent integration of data sets from individual investigators.

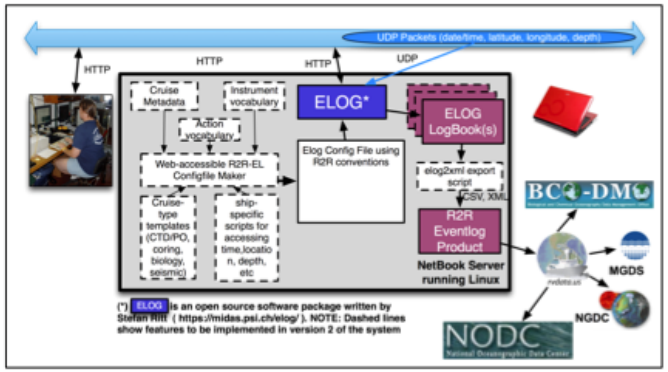
An event logger application, based on ELOG, has been developed and is being tested by scientists at sea. An important aspect of this project is the development of a controlled vocabulary and ontology for documenting the scientific sampling events that occur during a research cruise. The controlled vocabulary development is being influenced by similar efforts in other communities. In addition, a Web application is being developed for oceanographers to use to pre-configure the R2R event logger application with vocabulary terms and entry forms appropriate to the specific needs of their upcoming research cruise. Results and lessons learned from the R2R event logger development effort will be shared.

Cruise Event Entry Form



Cruise Event Listing

Design is based on ELOG Electronic Logbook



This figure shows the architecture for the R2R Event Logger. It is based on the ELOG Open Source software distribution. Dashed lines show elements delivered as part of version 2. Version 1 of the Event Logger employs hand generated Elog configuration files based on interviews with chief scientists. Results comprise a CSV export of all recorded events and a copy of the final configuratin files. Version 2 of the Event Logger will include a shipboard (and shore-based), web-accessible ELOG Configfile-maker that will create ELOG config files based on user input and a variety of other information provided in various files.

This figure shows an excerpt from a recent ELOG configuration file built to support a recent R2R Event Logger test cruise. It shows how customized lists of actions can be associated with instruments to ease data entry during a cruise.

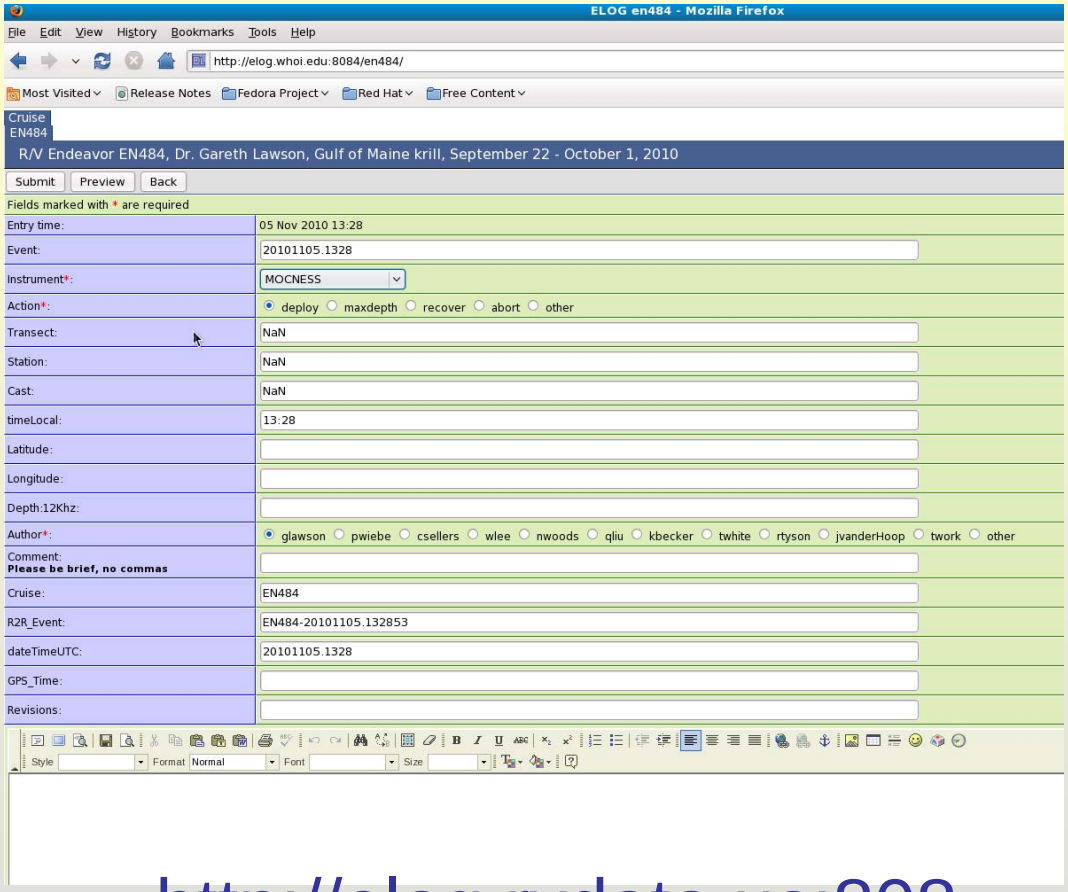
This table shows some of the vocabulary terms being used for Instrument (column 1) and Action (column 2) used in the R2R Event Logger. The remaining columns show the mappings to other existing vocabularies. The decision has been made to map all R2R Event Logger terms to SeaDataNet controlled vocabularies and to use the SeaVOX vocabulary governance process to add required terms and vocabularies to SeaDataNet where necessary.

R2R Cruise ID	Ship	Dates	Chief Scientist	Affiliation	Type of Cruise
		2010/05/20 to			
OC462	R/V Oceanus	2010/05/30	Chris Oberhaus	NOAA	Rad Mooring
		2010/07/29 to	Dennis		
OC467	R/V Oceanus	2010/08/02	McGillicuddy	WHOI	CTD/Floats
		2010/08/21 to			
OC468-02	R/V Oceanus	2010/09/02	Joseph Montoya	GIT	CTD/M2C
		2010/10/22 to			
EN484	R/V Endeavor	2010/10/31	Gareth Lawson	WHOI	CTD/M2C
	R/V	2010/10/27 to			
EN487	Endeavor	2010/11/05	Gareth Lawson	WHOI	CTD/M2C

It Takes a Team

Students
Technicians
Researchers

Try out the Event Log for the RVTEC 2010 "Cruise" and leave us some comments in the event log!



http://elog.rvdata.us:8086

Other Logbook Ideas we'd like feedback on…

- Science Sampling Logbook
  - This is the main and only logbook available in Version 1
- Science Result Logbook
  - A place for scientists to post data products and important notes during a cruise (along with attachments)
- Shipboard Instrument Logbook
  - Log instrument calibrations, repairs, replacements
  - Password protected with access by shipboard techs only
- Shipboard Network UDP Packet Grabber
  - Grab any UDP-available parameters once per minute
  - Would need ship-customized scripts but would create log entry using common vocabularies

Thanks! And time for Discussion ….

Event Logger Background Slides

Discussion Topics

- Cruise Sampling Event Log
  (device deployment metadata for science)
  - history
  - what it isn't
  - what it is
  - why

Why do we need an event log?

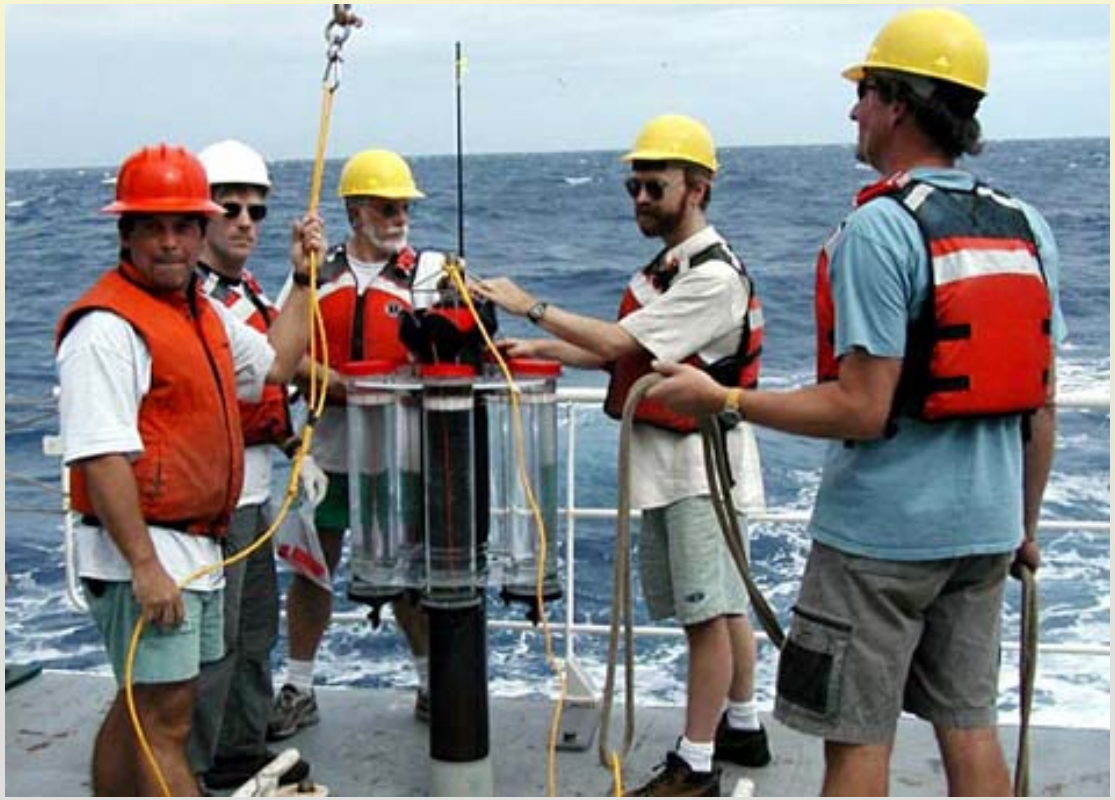
- Research vessels are an essential part of the global observing system
- *in situ* data can be collected only once (in space and time)
- oceanographic data are expensive to collect
  - Fuel costs
  - Specialized equipment
  - Highly trained people

- Recognition of these facts led to the R2R initiative of which the event log is one part.

Who wants an event log?

- Oceanographers and Data Managers
- The R2R event logger system will help researchers log their sampling events during a cruise.

- Unique event IDs help community members integrate discrete data sets after the cruise.



The event log is an important part of the cruise report

- basic cruise metadata
  - Cruise ID - a way to identify the cruise
    - KN195-08 (ship, voyage and leg)
    - KM0908 (ship, 2 digit year and sequential voyage for year)
  - dates and ports
- personnel manifest
  - list of everyone on board and contact information
  - their role during the cruise
- data inventory
  - list of who is expecting to collect what data during cruise
- event log
  - list of every device deployment during a cruise

. . . and becomes a data set in the research database.

Why? Research cruises are more complex (trend continuing)

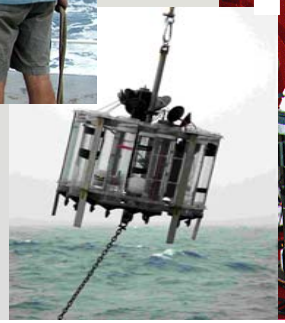
R/V Kilo Moana (University of Hawaii Marine Center)

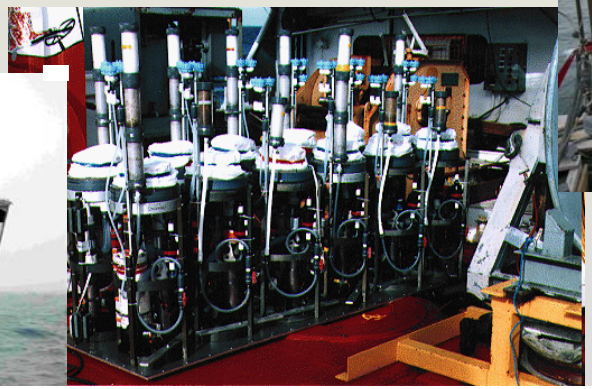
VERTIGO project KM0414 ALOHA cruise sampling event matrix

July 9th final summary of cruise activities

file VERTIGO final cruise activities.xls

Julian Day	172_173	173_174	174_175	175_176	176_177	177_178	178_179	179_180	180_181
ship plans- June 2004			particle collections	day 0	day 1	day 2	day 3	day 4	day 5
	20-Jun	21-Jun	22-Jun	23-Jun	24-Jun	25-Jun	26-Jun	27-Jun	28-Jun
hours	day 1	2	3	4	5	6	7	8	9
0		SS#1 CTD 2-18	SS#1 CTD 2-18	Trull trap in- 300	Survey CTD #24 & drifters	MOCNESS	MULVFS	NBST 300 out	MOCNESS
2		SS#1 CTD 2-18	SS#1 CTD 2-18	Launch Clap 150	Survey CTD #25 & drifters	SS	MULVFS	NBST 300 out	NBST 500 out
4		SS#1 CTD 2-18	recover 12hr NBST	STD bio cast- CTD #19 & Th CTD20	1000m CTD #26	CTD biocast #27 (shallow)	MULVFS	CTD #32	NBST 500 out
6	depart 0800	SS#1 CTD 2-18	SS#1 CTD 2-18	Launch Clap 300	Launch-optical trap	CTD biocast #28 (deep)	MULVFS	STD bio cast- CTD#33	NBST 500 out
8		SS#1 CTD 2-18	SS#1 CTD 2-18	Launch Clap 500	Launch-optical trap	MULVFS	NBST 150 out	Clap 300 out	Clap 500 out
10		recover 12 hr NBST	plankton net test- Silver/Tanner	Launch NBST 150	MOCNESS	MULVFS	NBST 150 out	CTD # 34-39	MOCNESS
12		SS#1 CTD 2-18	MOCNESS test	Launch NBST 300	MOCNESS	MULVFS	NBST 150 out	CTD # 34-39	MOCNESS
14		SS#1 CTD 2-18	MULVFS test	Launch NBST 500	Launch respirometer	MULVFS	Clap 150 out	CTD # 34-39	CTD # 40-44
16		deploy 12hr NBST test	MULVFS test	Survey CTD #21 & drifters	Go-Flo casts	Deep CTD 29- 3000m Ba/Th	Clap 150 out	CTD # 34-39	CTD # 40-44
18		SS#1 CTD 2-18	SS#1 CTD 2-18	Survey & drifters	Go-Flo casts	Deep CTD 29- 3000m Ba/Th	CTD #30 & 31	CTD # 34-39	CTD # 40-44
20	deploy 12hr NBST test	optical trap test	Launch 1 Siegel drifter	Survey CTD #22 & drifters	Launch C explorer	MULVFS	optical trap out	CTD # 34-39	CTD # 40-44
22	SS#1 CTD 2-18	SS#1 CTD 2-18	Trull trap in- 300	Survey CTD #23 & drifters	MOCNESS	MULVFS	bio cast-tow	MOCNESS	CTD # 40-44





MO WHOI

Data Inventory (list of expected measurements)

Instrument	Measurement	PI_name	co-PI_name
TMR	Bottle O2	Casciotti	Frame;Sieracki
TMR	Nitrate isotopes	Casciotti	nd
TMR	Uptake Expts-Fe Cd Zn Hg Ni	Cox	Saito
CTD	Productivities; selected stations	DiTullio	nd
CTD	Pigments	DiTullio	nd
CTD	Uptake Expts-carbon C14	Ditullio	Riseman
ON_DECK_PUMP	Incubation Expts-Iron;DMSP effects	DiTullio	nd
TMR	N2O	Frame	Casciotti
TMR	Methyl Mercury	Hammerschmidt	nd
CTD	nifH gene expression	Hilton	Zehr;Webb
TMR	FeL	Lam	Buck
MCLANE	Fe-Metal Particulates	Lam	nd
MCLANE	POC	Lam	nd
nd	Aerosol metals	Lamborg	nd
nd	Sediment trap fluxes including metals	Lamborg	nd
TMR	Total Dissolved Mercury	Lamborg	nd
TMR	DOC	Morris	Carlson
CTD	Heterotrophic bacterial counts-act	Morris	nd
CTD	Proteomics	Morris	Rocap
CTD	Pro and Syn phylogeny-ecotype	Rocap	Webb
ON_DECK_PUMP	Incubation Expts-Phosphate	Rocap	nd
LAB	Sampling Event Log	Saito	nd

Why now? (challenge and opportunity)

- What if we could all agree on some common approaches that would facilitate integration of results from all vessels in the research fleet?

Oceanus

Pelican

Point Sur

Polar Sea

Polar Star

Robert C. Seamans

Robert Gordon Sproul

Roger Revelle

Savannah

Seward Johnson

Thomas G. Thompson

Wecoma

shipboard sampling event log (from 2003)

generated automatically using some algorithm

controlled vocabulary

event	date	time	time_L	sta	lon	lat	ev_type	person	activity
0212208	20020121	2208	1108	TEST	-175.220	-53.572	CTD001	nd	CTD001
0230442	20020123	0442	1742	0	-171.480	-55.398	CTD002	Wang	CTD002
0231556	20020123	1556	0456	0	-171.583	-55.407	ZooTow	Landry	ZooplankTow
0232351	20020123	2351	1351	1	-171.521	-55.334	CTD003	nd	CTD003
0240153	20020124	0153	1453	1	-171.490	-55.329	TM001	Wang	TM001
0240356	20020124	0356	1656	1	-171.336	-55.314	CTD004	Bailey	CTD004
0240745	20020124	0745	2045	1	-171.408	-55.335	Pump_Cast	Andrews	PumpCast01
0241133	20020124	1133	0033	1	-171.405	-55.324	TM002	Wang	TM002
0241319	20020124	1319	0219	1	-171.384	-55.333	CTD005	Timothy	CTD005
0241435	20020124	1435	0335	1	-171.385	-56.333	HPT	Tanner	HandPlankTow
0241520	20020124	1520	0420	1	-171.383	-55.337	TM003	Landry	TM003

date, time and position from shipboard system

Final Event Log

- should be an electronic file in plain text (TSV or CSV)
- many researchers record events on paper logs in the main lab, and then enter the records into Excel
- a digital event logging application would simplify the process and reduce errors
- R2R will work with RVTEC to define a common event log format specification
- The prototype application is a start, but we need help from RVTEC during the next design phase . . . this week !


Questions?
thank you