



## Supporting Data Interoperability with Controlled Vocabularies

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<http://rvdata.us/>

The Rolling Deck to Repository (R2R) project team members work with ship operators, technicians and data managers to improve data stewardship for the "routine underway data" collected by the US academic research fleet. The R2R project has developed a shipboard system for logging scientific sampling events for a cruise.

### Which events are logged?

An event log entry is 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 includes these fields:

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

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

### How does this system improve event logs?

Data entry is automated as much as possible; date, time and position are supplied by ship data systems. Standardization is improved through the use of controlled vocabularies for some fields that require user input. The EventLogger system will eventually 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 interface is designed to be intuitive and has been field tested with user feedback included as part of the iterative design process. Documentation is included as part of the EventLogger system.

### What computing environment is required?

The R2R EventLogger application is based on opensource ELOG software authored by Stefan Ritt (<https://midas.psi.ch/elog/>). Version 1 of the R2R Event Logger system was deployed on a small laptop computer connected to the shipboard LAN and configured as the R2R ELOG server. Version 2 has been designed for installation on a shipboard server and is deployed as a persistent, vessel-resident system.

### Who uses the Event Logger?

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

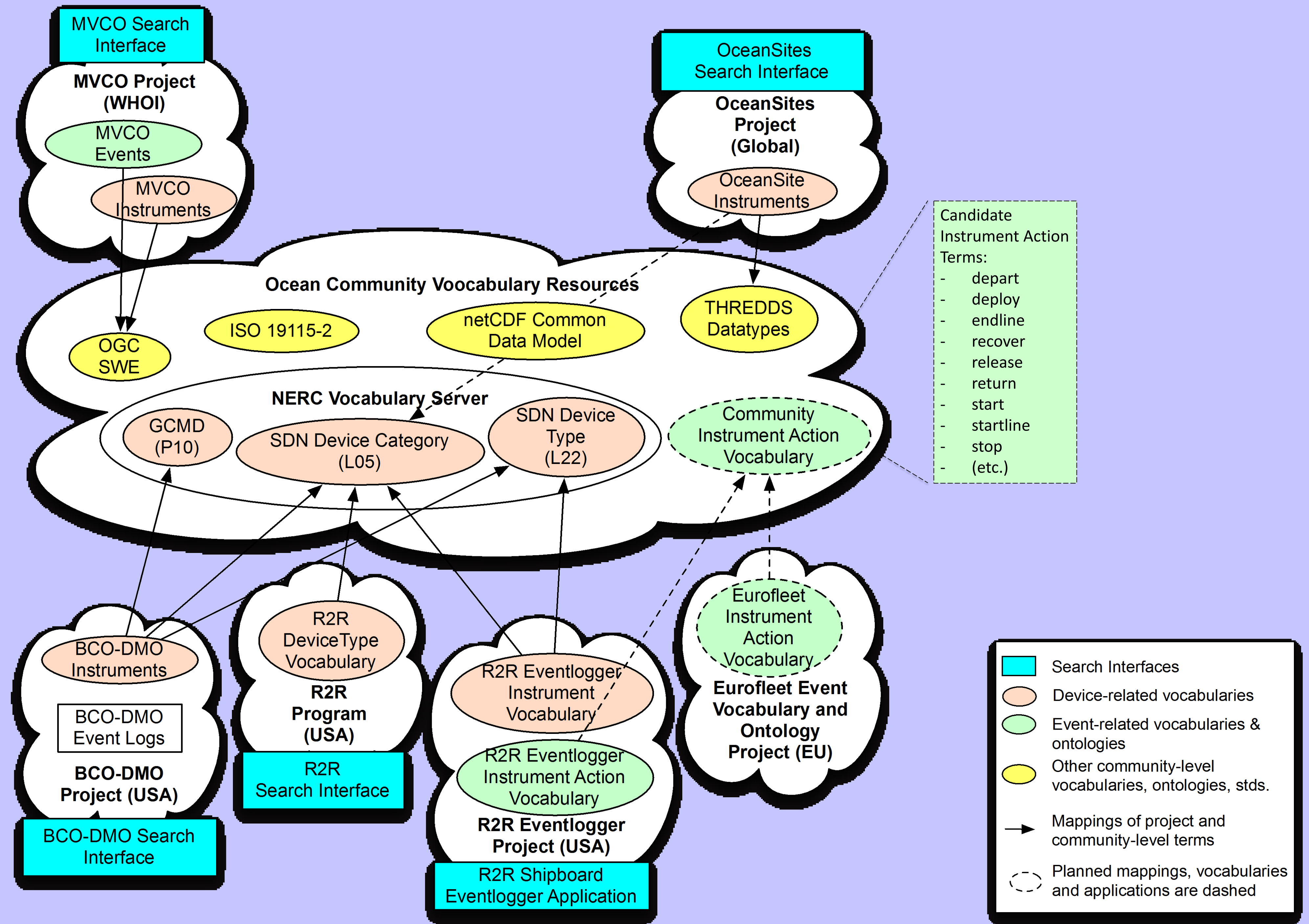
### How can the event log be used ashore?

At the conclusion of a cruise, all logged events are 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](http://rvdata.us). When included with cruise data sets and published in a database, the event log becomes a powerful tool to facilitate integration of discrete data sets.



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## Oceanographic Instrument Vocabulary Mapping



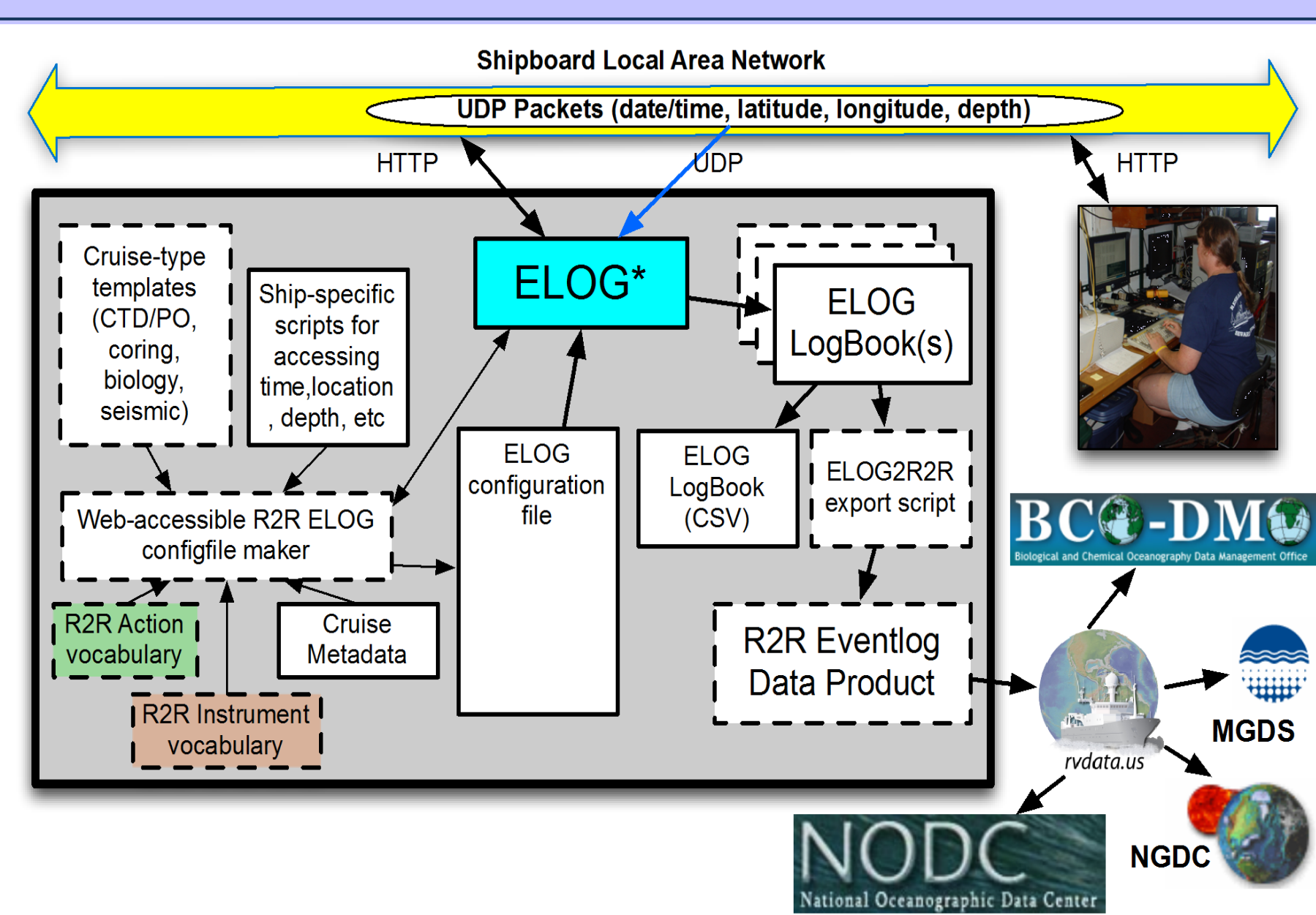
Project Instrument Mappings		BCO-DMO Project	R2R Program	R2R EventLogger
ADCP	Local Name	ADCP	adcp	Generic ADCP75
	Local ID	25		
	NVS ID	L05/current/115	L05/current/115	L05/current/115
CTD	Local Name	CTD Sea-Bird SBE 911plus	ctd	CTD911
	Local ID	256		
	NVS ID	L22/current/TOOL0058	L05/current/130	L22/current/TOOL0058
XBT	Local Name	Expendable Bathythermograph	expendableprobe	Generic XBT
	Local ID	202		
	NVS ID	L05/current/132	L05/current/132	L05/current/132
Dereferencable URLs				
NVS Terms	<a href="http://vocab.nerc.ac.uk/collection/&lt;NVS ID&gt;">http://vocab.nerc.ac.uk/collection/&lt;NVS ID&gt;</a>			
BCO-DMO Terms	<a href="http://osprey.bco-dmo.org/instrument.cfm?&lt;Local ID&gt;&amp;flag=view">http://osprey.bco-dmo.org/instrument.cfm?&lt;Local ID&gt;&amp;flag=view</a>			
R2R Program Terms	<a href="http://www.rvdata.us/voc/devicetype">http://www.rvdata.us/voc/devicetype</a> (table of all terms)			
R2R EventLogger Terms	not currently dereferencable on the web			

Vocabulary Collection	Term Mapping ID	NVS Name	NVS Description
L05 (Device Categories)	L05/current/115	current profilers	instrument that measures current speed and direction at multiple predetermined depths simultaneously (e.g. ADCP)
	L05/current/130	CTD	package lowered and raised vertically from a surface platform, carrying P,T,C sensors
	L05/current/132	bathythermographs	instruments that measure vertical profiles of sea temperature by ... dropping a free falling disposable sensor (XBT)
L22 (DeviceType)	L22/current/TOOL0058	Sea-Bird SBE 911plus CTD	High precision ... CTD comprising an SBE 9plus underwater unit (SBE 3 temperature and SBE 4 conductivity sensors) and an SBE 11plus deck unit. Sensors may be connected to a ...
P10 (GCMD Instr. Keywords)	P10/current/GI000288	LIDAR	Light Detection and Ranging
C17 (ICES Codes)	C17/current/32EV	Endeavor	Research vessel built in 1975, owned by NSF and operated by the GSO at URI ...
C96 (BODC data model spatial objects)	C96/current/CRUISE	Cruise	The deployment of a platform between two fixed points on a mission to collect data.
X??? (future action terms)	X???/current/????	deploy	The act of deploying a sampling device for the purpose of collecting data.



EventLogger use during a cruise ... on deck or in the lab

## EventLogger Architecture



## R2R Cruise Event Listing

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Event	dateTimeUTC	Instrument	Action	Cast	depth	Cast	Latitude	Longitude	Author	Comment
20120814.0800.001	20120814.0800	Ship	changeTimezone	Na			47.3987	-137.1936	nCopley	time zone changed from -7 to -8 on 8/13 at midnight; entered late; lat/lon corrected; 20120815.0309.001 changed to 20120814.0800.001
20120816.0527.001	20120816.0527	XBT	release	1			49.776495	-148.870743	rLveine	XBT - near station 1
20120816.0757.001	20120816.0757	Ship	startTransect	Na			49.882990	-149.413108	nCopley	
20120816.0757.002	20120816.0757	Ship	startStation	Na			49.882990	-149.413108	rLveine	
20120816.0807.001	20120816.0807	ReeveNet	start	4	64 mwo		49.879678	-149.413400	aMaas	changed timezone from -7 to -8
20120816.0830.001	20120816.0830	ReeveNet	end	4	64 mwo		49.873185	-149.413722	lRogier	changed timezone from -7 to -8
20120816.0905.001	20120816.0905	MOCNESS	start	2	1000		49.860742	-149.438258	pWebe	bad tow: uv unit and flowmeter both failed. Only n0 sampled.
20120816.1027.001	20120816.1027	Echosounder12	start	Na			49.874348	-149.511482	kHoernig	
20120816.1027.002	20120816.1027	Echosounder12	end	Na			49.874358	-149.511657	kHoernig	
20120816.1057.001	20120816.1057	MOCNESS	end	2	1000		49.878050	-149.536405	kHoernig	
20120816.1133.001	20120816.1133	CTD911	start	2	1000		49.876330	-149.551145	nCopley	
20120816.1133.002	20120816.1133	CTD911	deploy	2	1000		49.876330	-149.551145	nCopley	entered late; utc/latlon ok
20120816.1256.001	20120816.1256	CTD911	end	2	1000		49.875647	-149.541137	aMaas	
20120816.1256.002	20120816.1256	VPR	recover	2	1000		49.875647	-149.541137	nCopley	added late; utc/latlon ok
20120816.1257.001	20120816.1257	Ship	endStation	Na			49.875752	-149.540537	aMaas	

## BCO-DMO Event Listing

/BCO/OA\_Pteropods/event\_log

Event	dateTimeUTC	Instrument	Action	Cast	depth	Cast	Latitude	Longitude	Author	Comment
20120816.2029.001	20120816.2029	Ship	start	nd			44.62634	-124.04939	nCopley	
20120816.2029.002	20120816.2029	Ship	start	nd			44.73820	-124.04939	gLawson	
20120816.2029.003	20120816.2029	Ship	start	nd			44.62637	-124.04937	gLawson	
20120816.2029.004	20120816.2029	Ship	start	nd			49.79650	-149.41311	stLawson	
20120816.2029.005	20120816.2029	Ship	start	nd			49.88299	-149.41311	nCopley	
20120816.2029.006	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.007	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.008	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.009	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.010	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.011	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.012	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.013	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.014	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.015	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.016	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.017	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.018	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.019	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.020	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.021	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.022	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.023	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.024	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.025	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.026	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.027	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.028	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.029	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.030	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.031	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.032	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.033	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.034	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.035	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.036	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.037	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.038	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.039	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.040	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.041	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.042	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.043	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.044	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.045	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.046	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.047	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.048	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.049	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	
20120816.2029.050	20120816.2029	Ship	start	nd			49.88299	-149.41311	stLawson	