DIVE PLAN – Leg 1 Dive 16 Push Cores Pod 4 CTD Swap

Location: ***Barkley Canyon*** *Date: May 12, 2014 07:00 PDT*
Constraints: Weather, Sufficient deck space
ROV Dive Number : OE0119

Objectives

- 10 Push cores
- Recover Pod 4 CTD (DeviceID: 23079, 23043, 23133)
- Deploy new Pod 4 CTD (DeviceID:10601, 23285, 11102)
- Get range & bearing of Pod 4 platform from beacon

Dive Dependents

1. ROV porch grating orientation with respect to ROV heading

Ship Procedure

1. Transit to site, assess weather and sea state. Proceed only when it is safe to do so
2. Deploy ROV USBL pole

ACTION	LATITUDE	LONGITUDE	DEPTH (m)
Descend at Pod 3	48°18.8976'	-126°03.5300'	888
Ascend at Pod 4	48°18.8865'	-126°03.5013'	895

Shore Procedure

1. Monitor Twitter feed

Communications With Shore

1. On-board team will tweet using @oceanetworksops twitter account at the beginning of the dive
2. Post the dive plan on the cruise website
3. On-board team connect via intercom with shore operations as required

Navigation

1. Record positions of the deployed platforms and satellite instruments
2. Guide visual transect
3. Record interesting positions

Dive Chief

1. Record deviations from dive plan

Site/Equipment IDs

ACTION	SITEID	SITENAME	DEVICE ID	DEVICENAME	LATITUDE	LONGITUDE	DEPTH	PORT	EXT CABLE
Disconnect/ Recover	1000058	CanyonMidEast_CTD_2013-05	23079	SBE 16plus V2 CTD	48°18.8907'	-126°03.4893'	895	J6	200
Disconnect/ Recover	1000058	CanyonMidEast_CTD_2013-05	23043	SBE63 Oxygen Sensor	48°18.8907'	-126°03.4893'	895	J6	200
Disconnect/ Recover	1000058	CanyonMidEast_CTD_2013-05	23133	WET Labs ECO-FLNTU 2973	48°18.8907'	-126°03.4893'	895	J6	200
Connect	1000297	CanyonMidEast_CTD_2014-05	10601	SBE 16plus V2 CTD	48°18.8907'	-126°03.4893'	895	J6	
Connect	1000297	CanyonMidEast_CTD_2014-05	23285	SBE63 Oxygen Sensor	48°18.8907'	-126°03.4893'	895	J6	
Connect	1000297	CanyonMidEast_CTD_2014-05	11102	WET Labs ECO-FLNTU 2973	48°18.8907'	-126°03.4893'	895	J6	

ROV/Equipment Requirements

1. Milk Crate
2. Push cores (10)
3. New CTD for Pod 4
4. Niskin bottles

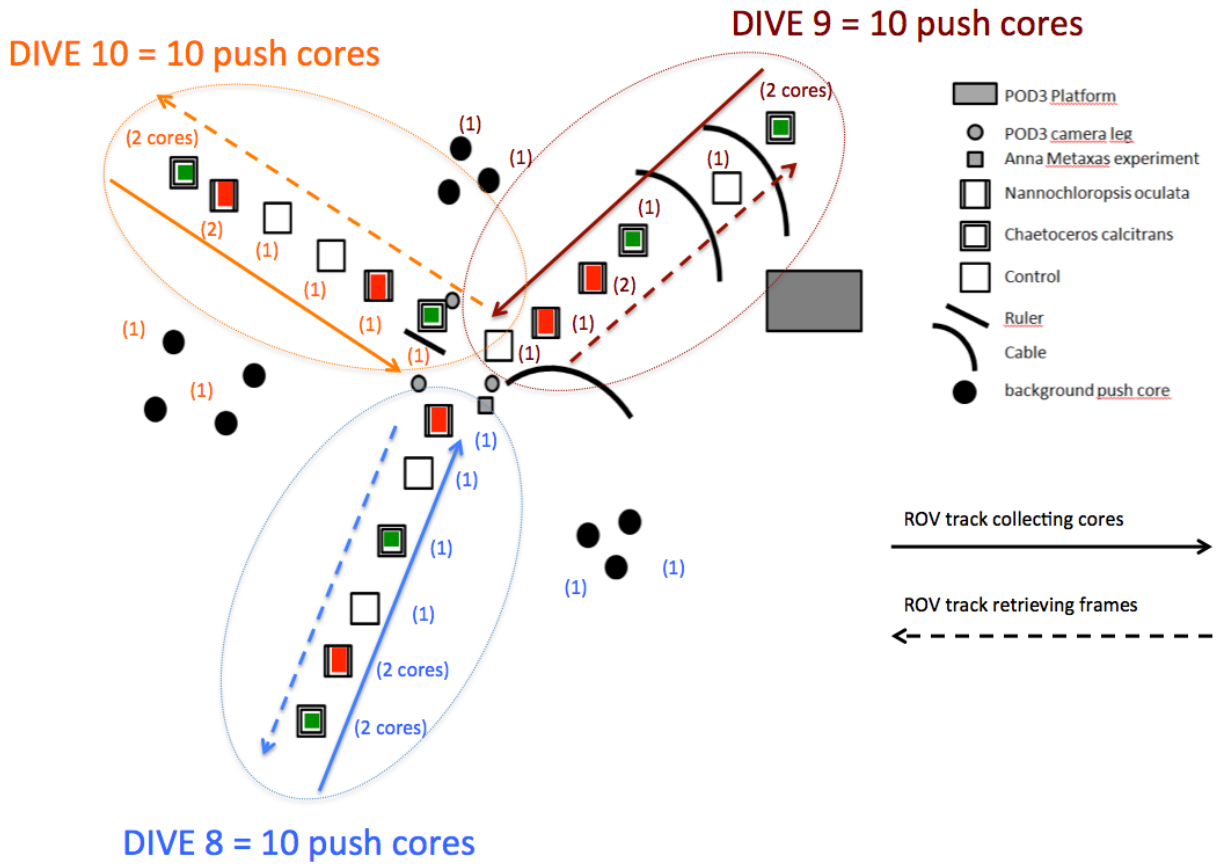
ROV Procedure

Descent

1. Start recording, start streaming video to UVic, start dive log, confirm both are being received
2. Start ROV-mounted CTD
3. Descend ROV

Push cores

1. Navigate to Pod 3 past Camera tripod
2. Take 10 push cores as per diagram and direction from shore.
3. Retrieve 6 frames for clearing site if time permitted.



4. Transit to Pod 4 with push cores.

Recover CTD (DeviceID: 23079, 23043, 23133) at Pod 4

1. Locate CTD tripod on seafloor 10 m from Pod 4
2. Record location of CTD (lat/lon and/or range & bearing)
3. Systems ensure port J6 is powered down and drivers are stopped
4. Proceed to CTD tripod and remove CTD (DeviceID: 23079)
5. Place CTD onto POD 4 until later.
6. Once powered down, disconnect connector from J6.
7. Place next to CTD on POD 4.

Deploy Pod 4 CTD (DeviceIDs: 10601,?,11102)

1. Connect new CTD to J6 on IP connector panel
2. Remove new CTD from porch
3. Transit to tripod and place CTD on tripod
4. Record final position (lat/lon and/or range & bearing) of CTD tripod if not obtained in previous step, or if tripod was moved at all.
5. Ensure port J6 is powered up and drivers started
6. Retrieve CTD (DeviceID: 23079) from POD 4 and recover in ROV arm.

Get Pod 4 range and bearing from beacon

1. Proceed to beacon next to Pod 3 camera
2. Record sonar range and bearing to Pod 4 platform

Take O2 sample

1. Grab Niskin bottle in manipulator
2. Place bottle near to and at approximately the same height as the CTD
3. Trigger bottle
4. Stow bottle

Pre-Ascent Checklist

1. Values
    1.1. CTD tripod—two values of each if tripod moved:
        1.1.1. Lat/lon
        1.1.2. Sonar range & bearing to/from at least one other object
    1.2. Pod 4
        1.2.1. Range & bearing from beacon

2. Objects
    2.1. Push cores
    2.2. Push core frames
    2.3. Niskins (triggered)

Ascend

1. Place Push cores on ROV porch.
2. Request permission for recovery from Bridge
3. Recover ROV

Post Dive Sample Handling

Niskin O2 water sample
Staff Scientist responsible: Fabio De Leo

Procedure for water sampling and *in situ* oxygen sample fixing

1) Collect water samples from desired depth with Niskin
2) On deck: fit silicon drawing tube with digital thermometer to spigot
3) Open the release valve (at the top end of the bottle) gently … do not open all the way quickly as this might introduce bubbles into the bottle
4) Open the spigot with the open end of the silcon drawing tubing and check for bubbles in the tube. Remove bubbles by gently squeezing tubing and/or adjusting flow rate of water
5) While water is running through the tubing, place the open end at the base of the glass O_2 flask
6) Allow the flask to overflow 3X the total volume of the flask. Take care not to introduce bubbles
7) During the time it takes for (6) note the temperature
8) Close the spigot only after the open end of the drawing tube has been pulled from the flask
9) Add each of two reagents: 1mL of a) $MnSO_4$; and b) $Na_2S_2O_3\,5H_2O$. These reagents will be in dispensing bottles and should be kept at hand while drawing water to the flasks.
10) Seal the flask with the glass stopper only AFTER reagents have been added.
11) The tip of the reagent dispensers should extend below the neck of the oxygen flasks, so that precipitate does not form in the excess seawater above the neck of the flasks
12) Once the stopper is in place; invert the flask in a vigorous fashion repeatedly for 1 minute
13) Make sure that the flask number and event are recorded. Place the fixed sample in the O2 flask case; add distilled water onto the top of the flask to prevent diffusion of air during storage; and store in the cold room
14) Keep the reagents at room temperature in the lab between sampling events

Core samples

Staff Scientist responsible: Fabio De Leo