

TROPICAL ATMOSPHERE-OCEAN (TAO) PROGRAM  
FINAL CRUISE REPORT  
KA-11-03

Area: Equatorial Pacific between 9°N and 5°S latitude along 140°W longitude and 8°S to 8°N latitude along 125°W longitude.

Itinerary:

KA-11-03 DEP *April 11, 2011, Ford Island, HI*  
ARR *May 11, 2011 San Diego, CA*

**CRUISE DESCRIPTION**

The Tropical Atmosphere Ocean (TAO) array consists of 70 buoys utilizing a taut line mooring configuration used to mount data collection sensors for climate research purposes. Fifteen buoys are serviced by JAMSTEC and the remaining 55 buoys from 95°W longitude to 165°E longitude are serviced by National Data Buoy Center (NDBC). Repair and maintenance of the buoys is performed by NDBC contracted personnel on an annual basis utilizing the NOAA Ship *Ka'imimoana* and other ships.

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TAO Cruise Objective and Plan:

The objective of this cruise was the maintenance of the TAO Array along the 140°W and 125°W meridians.

The scientific complement for the cruise embarked at Ford Island, HI on *April 10, 2011*. The ship departed on *April 11, 2011* and conducted operations as listed in Section 2.1. The ship arrived in San

Diego, CA on *May 11, 2011*.

## 1.0 PERSONNEL

### 1.1 CRUISE LEAD AND PARTICIPATING SCIENTISTS:

Cruise Lead: Dawn Petraitis

Participating Scientists:

Name	Gender	Nationality	Affiliation
Dawn Petraitis	F	US	NOAA/NDBC
William Thompson	M	US	NOAA/NDBC
James Lenoir	M	US	NOAA/NDBC

## 2.0 OPERATIONS

### 2.1 TAO Data Recovery Summary

Mooring Operations conducted are shown in the tables below. The following provides details on the data recovery efforts for the buoys serviced. All noted time in the summary reports is Coordinated Universal Time (UTC):

## Cruise Summary

<b>Buoy Site:</b> 9N 140W			
<b>Mooring Operation:</b> Repair		<b>Mooring ID#:</b> PM942B	
<b>Deployed Location:</b> 09 00.38N 140 14.791W		<b>Deployed Date:</b> 11/23/2010	
<b>Repair Location:</b> 09 00.4N 140 15.2W		<b>Repaired Date:</b> 4/17/2011	
<b>Sensors/Equipment Lost at Sea:</b> None			
<b>Sensors Damaged/Fouled:</b> Anemometer fin and prop missing.			
<b>Fishing Vandalism:</b> None			
<b>Sensors/Tubes Not Downloaded:</b> None			
<b>General Comments:</b> Replaced anemometer, rain gauge, and T20.			
<b>Site Sensor Failures</b>	<b>Date Sensors Failed</b>	<b>Why Sensors Failed</b>	<b>Field Service Observations</b>
Winds	12/6/10	Winds zeroed out	Fin & Prop missing
T20	12/2/10	Data erratic	None

<b>Buoy Site:</b> 5N 140W Refresh			
<b>Mooring Operation:</b> Recovery		<b>Mooring ID#:</b> DM010B	
<b>Deployed Location:</b> 05 01.8N 139 57.0W		<b>Deployed Date:</b> 4/7/2010	
<b>Recovered Location:</b> 05 02.077N 139 56.89W		<b>Recovered Date:</b> 4/18/2011	
<b>Previous Repair Date:</b> 11/24/2010			
<b>Sensors/Equipment Lost at Sea:</b> None			
<b>Sensors Damaged/Fouled:</b> SSC missing conductivity cage. Anemometer missing propeller. T20 – T60 fouled			
<b>Fishing/Vandalism:</b> Long line gear between 180m and 300m, around 500m sensors.			
<b>Sensors/Tubes Downloaded:</b> All sensors downloaded successfully.			
<b>General Comments:</b> None			
<b>Site Sensor Failures</b>	<b>Date Sensors Failed</b>	<b>Why Sensors Failed</b>	<b>Field Service Observations</b>
Winds	1/20/11	WSPD low	Missing Propeller

<b>Buoy Site:</b> 5N 140W Refresh		<b>Mooring Depth:</b> 4474m	
<b>Mooring Operation:</b> Deployment		<b>Mooring ID#:</b> DM021A	
<b>Deployed Location:</b> 05 01.365N 139 57.352W		<b>Deployed Date:</b> 4/19/2011	
<b>Pre-Deployment On Deck Instrument Failures:</b> None			
<b>Sensors/Equipment Lost at Sea:</b> None			
<b>Sensors Damaged During Deployment:</b> None			
<b>General Comments:</b> None			

<b>Buoy Site:</b> 5N 140W			
<b>Mooring Operation:</b> Recovery		<b>Mooring ID#:</b> PM891B	
<b>Deployed Location:</b> 04 57.8N 139 57.2W		<b>Deployed Date:</b> 4/8/2010	
<b>Recovered Location:</b> 04 57.614N 139 57.38W		<b>Recovered Date:</b> 4/19/2011	
<b>Previous Repair Date:</b> 11/24/2010			
<b>Sensors/Equipment Lost at Sea:</b> TP300			
<b>Sensors Damaged/Fouled:</b> Rain collector broken off rain gauge.			
<b>Fishing/Vandalism:</b> Cuts in nilspin at 20m and 300m.			
<b>Sensors/Tubes Downloaded:</b> All sensors downloaded successfully except TP300 - lost at sea, T20 - no communications, Tube had zero bytes stored on memory card.			
<b>General Comments:</b> None			
<b>Site Sensor Failures</b>	<b>Date Sensors Failed</b>	<b>Why Sensors Failed</b>	<b>Field Service Observations</b>
SSC	7/19/10	Data too high	Fouled
TP300	2/26/11	Data missing	Lost at Sea

<b>Buoy Site:</b> 5N 140W	<b>Mooring Depth:</b> 4480m
<b>Mooring Operation:</b> Deployment	<b>Mooring ID#:</b> PM965A
<b>Deployed Location:</b> 04 57.7N 139 57.8W	<b>Deployed Date:</b> 4/19/2011
<b>Pre-Deployment On Deck Instrument Failures:</b> Anemometer SN# 63918 failed on deck.	
<b>Sensors/Equipment Lost at Sea:</b> None	
<b>Sensors Damaged During Deployment:</b> None	
<b>General Comments:</b> None	

<b>Buoy Site:</b> 2N 140W			
<b>Mooring Operation:</b> Recovery		<b>Mooring ID#:</b> PM892B	
<b>Deployed Location:</b> 01 58.2N 140 00.1W		<b>Deployed Date:</b> 4/9/2010	
<b>Recovered Location:</b> 01 59.3N 140 00.5W		<b>Recovered Date:</b> 4/20/2011	
<b>Previous Repair Date:</b> 11/25/2010			
<b>Sensors/Equipment Lost at Sea:</b> SSC SN# 12804, T20 SN# 12444, T40 SN# 12920, TP300 SN# 13857			
<b>Sensors Damaged/Fouled:</b> None			
<b>Fishing/Vandalism:</b> None			
<b>Sensors/Tubes Downloaded:</b> All downloaded except sensors lost at sea.			
<b>General Comments:</b> SSC slid out of mounting bracket, cable broken on second SSC.			
<b>Site Sensor Failures</b>	<b>Date Sensors Failed</b>	<b>Why Sensors Failed</b>	<b>Field Service Observations</b>
SSC	8/28/10	Data too low	None
SSC	12/6/10	Data missing	Lost at Sea
T20	9/30/10	Data missing	Lost at Sea
T40	10/3/10	Data missing	Lost at Sea
TP300	12/10/10	Data missing	Lost at Sea

<b>Buoy Site:</b> 2N 140W	<b>Mooring Depth:</b> 4383m
<b>Mooring Operation:</b> Deployment	<b>Mooring ID#:</b> PM966A
<b>Deployed Location:</b> 02 01.2N 140 00.0W	<b>Deployed Date:</b> 4/21/2011
<b>Pre-Deployment On Deck Instrument Failures:</b> T60 SN#13475 failed on deck.	
<b>Sensors/Equipment Lost at Sea:</b> None	
<b>Sensors Damaged During Deployment:</b> None	
<b>General Comments:</b> T20 failed on deployment.	

<b>Buoy Site:</b> 0 140W	
<b>Mooring Operation:</b> Repair	<b>Mooring ID#:</b> PM943B
<b>Deployed Location:</b> 00 02.215S 139 52.28W	<b>Deployed Date:</b> 11/26/2010
<b>Repair Location:</b> 00 01.91S 139 52.02W	<b>Repaired Date:</b> 4/21/2011
<b>Sensors/Equipment Lost at Sea:</b> None	

<b>Sensors Damaged/Fouled:</b> None			
<b>Fishing Vandalism:</b> None			
<b>Sensors/Tubes Not Downloaded:</b> Tube downloaded successfully.			
<b>General Comments:</b> Replaced LW radiation sensor.			
<b>Site Sensor Failures</b>	<b>Date Sensors Failed</b>	<b>Why Sensors Failed</b>	<b>Field Service Observations</b>
LWRad	1/8/11	Data too low	None

<b>Buoy Site:</b> 0 140W Refresh			
<b>Mooring Operation:</b> Recovery		<b>Mooring ID#:</b> DM011B	
<b>Deployed Location:</b> 00 00.7S 139 52.9W		<b>Deployed Date:</b> 4/11/2010	
<b>Recovered Location:</b> 00 00.3S 139 52.8W		<b>Recovered Date:</b> 4/21/2011	
<b>Previous Repair Date:</b> 11/27/2010			
<b>Sensors/Equipment Lost at Sea:</b> None			
<b>Sensors Damaged/Fouled:</b> 48m SBE44 slid down to 60m. Cable between Sontek and SBE44 failed. Connector on SBE44 damaged. Half of Sontek cable missing, spiral wrap intact. SSC, T5 – T60, Sontek 12m, SBE44 13m, Sontek 27m, SBE44 28m, Sontek 47m, and SBE44 48m fouled.			
<b>Fishing/Vandalism:</b> Cuts in nilspin at 120m and 500m.			
<b>Sensors/Tubes Not Downloaded:</b> All sensors downloaded successfully except Sontek Prop# 25869, T40 Prop# 27217, and T120 Prop# 31431.			
<b>General Comments:</b> None			
<b>Site Sensor Failures</b>	<b>Date Sensors Failed</b>	<b>Why Sensors Failed</b>	<b>Field Service Observations</b>
ATMP/RH	12/3/10	Data too high	None
V45	10/23/10	Data missing	Fouled, slid to 60m
V120	12/1/10	Data missing	Fouled
V10	2/15/11	Data missing	Fouled
V25	7/14/10	Data missing	Fouled
V80	9/22/10	Data missing	Fouled

<b>Buoy Site:</b> 0 140W Refresh		<b>Mooring Depth:</b> 4345m	
<b>Mooring Operation:</b> Deployment		<b>Mooring ID#:</b> DM022A	
<b>Deployed Location:</b> 00 01.7S 139 53.3W		<b>Deployed Date:</b> 4/22/2011	
<b>Pre-Deployment On Deck Instrument Failures:</b> None			
<b>Sensors/Equipment Lost at Sea:</b> None			
<b>Sensors Damaged During Deployment:</b> None			
<b>General Comments:</b> Routine deployment.			

<b>Buoy Site:</b> 2S 140W
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<b>Mooring Operation:</b> Recovery		<b>Mooring ID#:</b> PM893A	
<b>Deployed Location:</b> 02 02.0S 139 59.8W		<b>Deployed Date:</b> 4/12/2010	
<b>Recovered Location:</b> 02 02.596S 140 00.139W		<b>Recovered Date:</b> 4/22/2011	
<b>Previous Repair Date:</b> None			
<b>Sensors/Equipment Lost at Sea:</b> None			
<b>Sensors Damaged/Fouled:</b> SSC, T20 – T120 fouled			
<b>Fishing/Vandalism:</b> None			
<b>Sensors/Tubes Downloaded:</b> All sensors downloaded successfully.			
<b>General Comments:</b> None			
<b>Site Sensor Failures</b>	<b>Date Sensors Failed</b>	<b>Why Sensors Failed</b>	<b>Field Service Observations</b>
None			

<b>Buoy Site:</b> 2S 140W		<b>Mooring Depth:</b> 4351m	
<b>Mooring Operation:</b> Deployment		<b>Mooring ID#:</b> PM967A	
<b>Deployed Location:</b> 02 02.5S 139 59.6W		<b>Deployed Date:</b> 4/23/2011	
<b>Pre-Deployment On Deck Instrument Failures:</b> None			
<b>Sensors/Equipment Lost at Sea:</b> None			
<b>Sensors Damaged During Deployment:</b> None			
<b>General Comments:</b> None			

<b>Buoy Site:</b> 5S 140W			
<b>Mooring Operation:</b> Visit		<b>Mooring ID#:</b> PM944A	
<b>Deployed Location:</b> 05 03.432S 139 54.09W		<b>Deployed Date:</b> 11/29/2010	
<b>Visit Location:</b> 05 03.4S 139 54.752W		<b>Visit Date:</b> 4/24/2011	
<b>Sensors/Equipment Lost at Sea:</b> None			
<b>Sensors Damaged/Fouled:</b> None			
<b>Fishing Vandalism:</b> None			
<b>General Comments:</b> TP300 out on flyby.			
<b>Site Sensor Failures</b>	<b>Date Sensors Failed</b>	<b>Why Sensors Failed</b>	<b>Field Service Observations</b>
None			

<b>Buoy Site:</b> 5S 140W Refresh			
<b>Mooring Operation:</b> Visit		<b>Mooring ID#:</b> DM015A	
<b>Deployed Location:</b> 05 00.1S 139 56.6W		<b>Deployed Date:</b> 11/30/2010	
<b>Visit Location:</b> 04 59.58S 139 54.86W		<b>Visit Date:</b> 4/24/2011	
<b>Sensors/Equipment Lost at Sea:</b> None			
<b>Sensors Damaged/Fouled:</b> None			
<b>Fishing Vandalism:</b> None			

<b>General Comments:</b> Could not connect via wireless.			
<b>Site Sensor Failures</b>	<b>Date Sensors Failed</b>	<b>Why Sensors Failed</b>	<b>Field Service Observations</b>
None			

<b>Buoy Site:</b> 8S 125W			
<b>Mooring Operation:</b> Recovery		<b>Mooring ID#:</b> PM894A	
<b>Deployed Location:</b> 07 59.8S 124 58.8W		<b>Deployed Date:</b> 4/19/2010	
<b>Recovered Location:</b> 07 59.6S 124 58.8W		<b>Recovered Date:</b> 4/28/2011	
<b>Previous Repair Date:</b> None			
<b>Sensors/Equipment Lost at Sea:</b> None			
<b>Sensors Damaged/Fouled:</b> SSC, T20 – T140 fouled			
<b>Fishing/Vandalism:</b> None			
<b>Sensors/Tubes Downloaded:</b> All sensors downloaded successfully.			
<b>General Comments:</b> None			
<b>Site Sensor Failures</b>	<b>Date Sensors Failed</b>	<b>Why Sensors Failed</b>	<b>Field Service Observations</b>
Tube	2/27/11	Transmission Failure	None

<b>Buoy Site:</b> 8S 125W		<b>Mooring Depth:</b> 4508m	
<b>Mooring Operation:</b> Deployment		<b>Mooring ID#:</b> PM968A	
<b>Deployed Location:</b> 07 59.097S 124 58.939W		<b>Deployed Date:</b> 4/28/2011	
<b>Pre-Deployment On Deck Instrument Failures:</b> Tube SN# 760 was replaced with the spare due to a memory error. Tube showed 0 bytes stored while operating on deck. Spare tube was deployed.			
<b>Sensors/Equipment Lost at Sea:</b> None			
<b>Sensors Damaged During Deployment:</b> None			
<b>General Comments:</b> None			

<b>Buoy Site:</b> 5S 125W Refresh			
<b>Mooring Operation:</b> Repair		<b>Mooring ID#:</b> DM016B	
<b>Deployed Location:</b> 05 02.538S 124 51.34W		<b>Deployed Date:</b> 12/4/2010	
<b>Repair Location:</b> 05 02.2S 124 52.1W		<b>Repair Date:</b> 4/29/2011	
<b>Sensors/Equipment Lost at Sea:</b> None			
<b>Sensors Damaged/Fouled:</b> None			
<b>Fishing Vandalism:</b> None			
<b>General Comments:</b> Replaced AT/RH sensor. Old Prop# 32884, new Prop# 34192. Could not connect via wireless, would not respond.			
<b>Site Sensor Failures</b>	<b>Date Sensors Failed</b>	<b>Why Sensors Failed</b>	<b>Field Service Observations</b>
ATMP/RH	3/5/11	Data too low	None

<b>Buoy Site:</b> 5S 125W			
<b>Mooring Operation:</b> Visit		<b>Mooring ID#:</b> PM945A	
<b>Deployed Location:</b> 04 59.465S 124 56.786W		<b>Deployed Date:</b> 12/5/2010	
<b>Visit Location:</b> 04 59.6S 124 56.2W		<b>Visit Date:</b> 4/29/2011	
<b>Sensors/Equipment Lost at Sea:</b> None			
<b>Sensors Damaged/Fouled:</b> None			
<b>Fishing Vandalism:</b> None			
<b>General Comments:</b> T100 out on flyby.			
<b>Site Sensor Failures</b>	<b>Date Sensors Failed</b>	<b>Why Sensors Failed</b>	<b>Field Service Observations</b>
T100	1/16/11	Slid to 120m	None

<b>Buoy Site:</b> 2S 125W			
<b>Mooring Operation:</b> Visit		<b>Mooring ID#:</b> PM946A	
<b>Deployed Location:</b> 02 01.627S 124 53.016W		<b>Deployed Date:</b> 12/6/2010	
<b>Visit Location:</b> 02 02.3S 124 53.4W		<b>Visit Date:</b> 4/30/2011	
<b>Sensors/Equipment Lost at Sea:</b> None			
<b>Sensors Damaged/Fouled:</b> None			
<b>Fishing Vandalism:</b> None			
<b>General Comments:</b> None			
<b>Site Sensor Failures</b>	<b>Date Sensors Failed</b>	<b>Why Sensors Failed</b>	<b>Field Service Observations</b>
None			

<b>Buoy Site:</b> 0 125W			
<b>Mooring Operation:</b> Recovery		<b>Mooring ID#:</b> PM947A	
<b>Deployed Location:</b> 00 10.44S 124 22.17W		<b>Deployed Date:</b> 12/7/2010	
<b>Recovered Location:</b> 00 09.53S 124 22.92W		<b>Recovered Date:</b> 5/1/2011	
<b>Previous Repair Date:</b> None			
<b>Sensors/Equipment Lost at Sea:</b> Acoustic release Prop# CD0001694609 lost at sea.			
<b>Sensors Damaged/Fouled:</b> SSC, T20 fouled			
<b>Fishing/Vandalism:</b> None			
<b>Sensors/Tubes Downloaded:</b> All sensors downloaded successfully except SN#15143 which showed communication errors.			
<b>General Comments:</b> No communications with the release, would not respond to enable or release commands. Deployed a line cutter, which cut at the fifth spool of nylon.			
<b>Site Sensor Failures</b>	<b>Date Sensors Failed</b>	<b>Why Sensors Failed</b>	<b>Field Service Observations</b>
None			



<b>Buoy Site:</b> 0 125W	<b>Mooring Depth:</b> 4782m
<b>Mooring Operation:</b> Deployment	<b>Mooring ID#:</b> PM969A
<b>Deployed Location:</b> 00 10.56S 124 23.85W	<b>Deployed Date:</b> 5/2/2011
<b>Pre-Deployment On Deck Instrument Failures:</b> None	
<b>Sensors/Equipment Lost at Sea:</b> None	
<b>Sensors Damaged During Deployment:</b> None	
<b>General Comments:</b> Flyby showed the 300 m and 500 m sensors were 20m and 50m shallow, respectively. Also, the acoustic release has a 5/8 shackle in place of the release link.	

<b>Buoy Site:</b> 2N 125W			
<b>Mooring Operation:</b> Repair		<b>Mooring ID#:</b> PM948B	
<b>Deployed Location:</b> 01 57.178N 125 01.96W		<b>Deployed Date:</b> 12/9/2010	
<b>Repair Location:</b> 01 57.765N 125 01.656W		<b>Repaired Date:</b> 5/2/2011	
<b>Sensors/Equipment Lost at Sea:</b> None			
<b>Sensors Damaged/Fouled:</b> None			
<b>Fishing Vandalism:</b> None			
<b>Sensors/Tubes Not Downloaded:</b> Tube successfully downloaded.			
<b>General Comments:</b> Replaced anemometer. T180 out on data check.			
<b>Site Sensor Failures</b>	<b>Date Sensors Failed</b>	<b>Why Sensors Failed</b>	<b>Field Service Observations</b>
Winds	3/28/11	WDIR off	None

<b>Buoy Site:</b> 5N 125W			
<b>Mooring Operation:</b> Recovery		<b>Mooring ID#:</b> PM896A	
<b>Deployed Location:</b> 05 04.450N 124 56.651W		<b>Deployed Date:</b> 4/23/2010	
<b>Recovered Location:</b> 05 06.893N 124 56.899W		<b>Recovered Date:</b> 5/3/2011	
<b>Previous Repair Date:</b> None			
<b>Sensors/Equipment Lost at Sea:</b> T20 SN# 15077, TP300 SN# 15184, and TP500 SN# 15185 lost at sea.			
<b>Sensors Damaged/Fouled:</b> T40 SN# 15078 flooded. SSC fouled.			
<b>Fishing/Vandalism:</b> None			
<b>Sensors/Tubes Downloaded:</b> All downloaded successfully except flooded T40 sensor.			
<b>General Comments:</b> None			
<b>Site Sensor Failures</b>	<b>Date Sensors Failed</b>	<b>Why Sensors Failed</b>	<b>Field Service Observations</b>
T20	9/27/10	Data missing	Lost at Sea
TP300	10/6/10	Data missing	Lost at Sea
TP500	8/22/10	Data missing	Lost at Sea
T40	10/24/10	Data missing	Sensor flooded

<b>Buoy Site:</b> 5N 125W	<b>Mooring Depth:</b> 4407m
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<b>Mooring Operation:</b> Deployment	<b>Mooring ID#:</b> PM970A
<b>Deployed Location:</b> 05 05.0N 124 56.11W	<b>Deployed Date:</b> 5/4/2010
<b>Pre-Deployment On Deck Instrument Failures:</b> None	
<b>Sensors/Equipment Lost at Sea:</b> None	
<b>Sensors Damaged During Deployment:</b> None	
<b>General Comments:</b> Acoustic release has 5/8 shackle in place of release link.	

<b>Buoy Site:</b> 8N 125W			
<b>Mooring Operation:</b> Recovery		<b>Mooring ID#:</b> PM949A	
<b>Deployed Location:</b> 08 01.457N 125 00.499W		<b>Deployed Date:</b> 12/11/2010	
<b>Recovered Location:</b> 08 00.665N 125 01.425W		<b>Recovered Date:</b> 5/4/2011	
<b>Previous Repair Date:</b> None			
<b>Sensors/Equipment Lost at Sea:</b> None			
<b>Sensors Damaged/Fouled:</b> SSC, T20 fouled			
<b>Fishing/Vandalism:</b> None			
<b>Sensors/Tubes Downloaded:</b> All sensors downloaded successfully.			
<b>General Comments:</b> None			
<b>Site Sensor Failures</b>	<b>Date Sensors Failed</b>	<b>Why Sensors Failed</b>	<b>Field Service Observations</b>
None			

<b>Buoy Site:</b> 8N 125W	<b>Mooring Depth:</b> 4665m
<b>Mooring Operation:</b> Deployment	<b>Mooring ID#:</b> PM971A
<b>Deployed Location:</b> 08 01.69N 125 00.53W	<b>Deployed Date:</b> 5/5/2011
<b>Pre-Deployment On Deck Instrument Failures:</b> None	
<b>Sensors/Equipment Lost at Sea:</b> None	
<b>Sensors Damaged During Deployment:</b> None	
<b>General Comments:</b> None	

## 2.2 *CTD Casts Completed*

A Sea-Bird 911plus CTD with dual temperature and conductivity sensors was provided by the NMAO. Temperature and conductivity sensors are calibrated yearly at Sea-Bird and sent in for diagnostics as necessary. A Sea-Bird 12-position carousel and twelve 5-liter Niskin bottles were used to collect water samples for the analysis of salinity.

The following outlines the CTD casts completed during the cruise:

<b>CTD Operations</b>			
<b>Coordinates</b>	<b>Date</b>	<b>Cast #</b>	<b>Comments</b>
09 01.645N 140 17.191W	4/17/2011	KA30011	3000m
07 58.423N 140 10.538W	4/17/2011	KA30021	1000m
06 59.613N 140 05.974W	4/18/2011	KA30031	1000m
05 59.959N 140 01.325W	4/18/2011	KA30041	1000m
05 00.565N 140 00.059W	4/19/2011	KA30051	1000m
04 00.081N 139 58.073W	4/20/2011	KA30061	1000m
03 00.097N 139 58.997W	4/20/2011	KA30071	1000m
02 01.080N 140 01.812W	4/21/2011	KA30081	1000m
00 59.620N 139 57.022W	4/21/2011	KA30091	1000m
00 00.634N 139 53.325W	4/22/2011	KA30101	3000m
01 00.407S 139 55.295W	4/22/2011	KA30111	1000m
02 03.549S 140 01.766W	4/23/2011	KA30121	1000m
03 00.085S 139 57.979W	4/23/2011	KA30131	1000m
03 59.497S 139 56.049W	4/23/2011	KA30141	1000m
05 03.841S 139 52.109W	4/24/2011	KA30151	3000m
07 59.717S 124 52.686W	4/28/2011	KA30161	3000m
06 59.921S 124 59.081W	4/29/2011	KA30171	1000m
05 59.978S 124 59.611W	4/29/2011	KA30181	1000m
04 57.110S 124 55.481W	4/29/2011	KA30191	1000m
03 59.788S 124 54.817W	4/30/2011	KA30201	1000m
03 00.187S 124 54.217W	4/30/2011	KA30211	1000m
02 04.785S 124 54.564W	4/30/2011	KA30221	1000m
01 01.559S 124 37.036W	5/1/2011	KA30231	1000m
00 09.044S 124 23.787W	5/1/2011	KA30241	3000m
01 05.483N 124 46.696W	5/2/2011	KA30251	1000m
02 00.291N 125 02.541W	5/2/2011	KA30261	1000m
02 59.969N 125 00.768W	5/3/2011	KA30271	1000m
04 00.372N 124 58.911W	5/3/2011	KA30281	1000m
05 06.450N 124 56.350W	5/4/2011	KA30291	1000m
06 00.061N 124 57.391W	5/4/2011	KA30301	1000m
06 59.627N 124 59.181W	5/4/2011	KA30311	1000m
08 04.721N 124 59.727W	5/5/2011	KA30321	3000m

### 2.3 *Ancillary Science Projects Completed on the Cruise*

The following outlines the ancillary science work performed in conjunction with the TAO operations on the cruise:

### Pacific Marine Environmental Laboratory (PMEL) Argo Profiling CTD Floats

Eight (8) Argo floats were scheduled for deployment on this cruise. The chief scientist verified and briefed the Operations Officer on the deployment positions prior to the start of the cruise. All Argo Float deployments were completed as scheduled.

Questions concerning ARGO Floats should be directed to:

Gregory Johnson, NOAA/PMEL  
Tel: (206) 526-6806  
E-mail: [pmel\\_floats@noaa.gov](mailto:pmel_floats@noaa.gov)

or

Elizabeth Steffen, NOAA/PMEL  
Tel: (206) 526-6747  
E-mail: [pmel\\_floats@noaa.gov](mailto:pmel_floats@noaa.gov)

The following outlines the Argo floats deployed during the cruise:

<b>ARGO Floats</b>			
<b>Coordinates</b>	<b>Date</b>	<b>SN#</b>	<b>Comments</b>
04 57.632N 139 57.497W	4/20/2011	6862	
02 02.310N 140 01.804W	4/21/2011	6874	
01 00.082N 139 57.009W	4/21/2011	5422	
00 00.691N 139 52.730W	4/22/2011	6877	
01 00.339S 139 55.068W	4/22/2011	5402	
01 01.475S 124 36.537W	5/1/2011	5416	
00 10.911S 124 23.172W	5/2/2011	5415	
01 05.913N 124 46.084W	5/2/2011	5412	

### Atlantic Oceanographic and Meteorological Laboratory (AMOL) Surface Drifting Floats

Ten (10) AOML Surface Drifters were scheduled for deployment on this cruise. The chief scientist verified and briefed the Operations Officer on the deployment positions prior to the start of the cruise. All AOML Surface Drifter deployments were completed as scheduled.

Questions concerning AOML Surface Drifters should be directed to:

Shaun Dolk, NOAA/AOML  
Global Drifter Center,  
Tel: (305) 361-4546  
Fax: (305) 361-4436  
E-mail: [shaun.dolk@noaa.gov](mailto:shaun.dolk@noaa.gov)

The following outlines the AOML Drifting floats deployed during this cruise:

<b>AOML Floats</b>			
<b>Coordinates</b>	<b>Date</b>	<b>SN#</b>	<b>Comments</b>
04 57.594N 139 57.247W	4/20/2011	43538	
02 02.385N 140 01.813W	4/21/2011	43626	
00 00.662N 139 52.734W	4/22/2011	39393	
02 03.753S 140 02.104W	4/23/2011	39457	
05 03.667S 139 51.923W	4/24/2011	39456	
04 56.496S 124 55.281W	4/29/2011	43684	
02 04.409S 124 54.353W	4/30/2011	82415	
00 10.867S 124 23.137W	5/2/2011	43891	
02 00.337N 125 02.217W	5/2/2011	39567	
05 06.435N 124 56.150W	5/4/2011	39433	