

TROPICAL ATMOSPHERE-OCEAN (TAO) PROGRAM  
FINAL CRUISE REPORT  
KA-11-07

Area: Equatorial Pacific between 8°N and 8°S latitude along 165°E Longitude and 8°S to 8°N Latitude along 180° Longitude.

Itinerary:

KA-11-07 DEP November 6, 2011, Pohnpei, FSM  
ARR December 7, 2011, Honolulu, HI

**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.

TAO Project Points of Contact:

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TAO Cruise Objective and Plan:

The objective of this cruise was the maintenance of the TAO Array along the 165°E and 180° meridians. The scientific complement for the cruise embarked at Pohnpei, FSM on November 5, 2011. The ship departed on November 6, 2011 and conducted operations as listed in Section 2.1. The ship arrived in

Honolulu, HI on December 7, 2011.

## 1.0 PERSONNEL

### 1.1 CRUISE LEAD AND PARTICIPATING SCIENTISTS:

Cruise Lead: Leonard Quigley

Participating Scientists:

Name	Gender	Nationality	Affiliation
Leonard Quigley	M	US	NOAA/NDBC
Bryan Guchereau	M	US	NOAA/NDBC
Danielle Carpenter	F	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 times in this summary report are Coordinated Universal Time (UTC). Comments regarding sensor data are based on the real-time analysis.

### Cruise Summary

<b>Buoy Site:</b> 8N 165E Legacy			
<b>Mooring Operation:</b> Recovery		<b>Mooring ID#:</b> PM935B	
<b>Deployed Location:</b> 08 3.44N 165 07.70E		<b>Deployed Date:</b> 10/7/2010	
<b>Recovered Location:</b> 08 2.59N 165 06.8E		<b>Recovered Date:</b> 11/8/2011	
<b>Previous Repair Date:</b> 2/25/2011			
<b>Sensors/Equipment Lost at Sea:</b> T200			
<b>Sensors Damaged/Fouled:</b> Anemometer had loose shaft and propeller			
<b>Fishing/Vandalism:</b> Fishing line around the sensor at 150m and in the upper chain above the nilspin.			
<b>Sensors/Tubes Downloaded:</b> All sensors downloaded successfully except T200, which was lost at sea.			
<b>General Comments:</b> Buoy not transmitting upon arrival.			
<b>Site Sensor Failures</b>	<b>Date Data Flagged</b>	<b>Why Data Flagged</b>	<b>Field Service Observations</b>
Buoy	8/30/11, 9/21/11	Transmission failure	NA

<b>Buoy Site:</b> 8N 165E Legacy	<b>Mooring Depth:</b> 5214m
<b>Mooring Operation:</b> Deployment	<b>Mooring ID#:</b> PM991A
<b>Deployed Location:</b> 08 03.01N 165 09.01E	<b>Deployed Date:</b> 11/9/2011
<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 165E Legacy			
<b>Mooring Operation:</b> Recovery		<b>Mooring ID#:</b> PM957A	
<b>Deployed Location:</b> 05 05.7N 165 01.94E		<b>Deployed Date:</b> 2/27/2011	
<b>Recovered Location:</b> 05 05.5N 165 02.5E		<b>Recovered Date:</b> 11/10/2011	
<b>Previous Repair Date:</b> None			
<b>Sensors/Equipment Lost at Sea:</b> None			
<b>Sensors Damaged/Fouled:</b> T125 sensor off mount, small swordfish bill between sensor and nilspin at TP300 sensor.			
<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 Data Flagged</b>	<b>Why Data Flagged</b>	<b>Field Service Observations</b>
NA	NA	NA	NA

<b>Buoy Site:</b> 5N 165E Refresh			
<b>Mooring Operation:</b> Recovery		<b>Mooring ID#:</b> DM013B	
<b>Deployed Location:</b> 04 58.14N 165 02.49E		<b>Deployed Date:</b> 10/9/2010	
<b>Recovered Location:</b> 04 57.89N 165 03.01E		<b>Recovered Date:</b> 11/10/2011	
<b>Previous Repair Date:</b> 2/26/2011			
<b>Sensors/Equipment Lost at Sea:</b> None			
<b>Sensors Damaged/Fouled:</b> Both SSC sensors bio-fouled.			
<b>Fishing/Vandalism:</b> None			
<b>Sensors/Tubes Downloaded:</b> All sensors downloaded successfully except the SSC, which had communication errors.			
<b>General Comments:</b> None			
<b>Site Sensor Failures</b>	<b>Date Data Flagged</b>	<b>Why Data Flagged</b>	<b>Field Service Observations</b>
TP300	3/28/11	Erratic then zeroes	NA
RH	3/20/11	Reporting high	NA
SSC	10/26/10, 3/29/11	Erratically low	Sensor fouled

<b>Buoy Site:</b> 5N 165E Refresh	<b>Mooring Depth:</b> 4792m
<b>Mooring Operation:</b> Deployment	<b>Mooring ID#:</b> DM027A
<b>Deployed Location:</b> 05 02.38N 165 00.75E	<b>Deployed Date:</b> 11/10/2011
<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> 2N 165E Legacy			
<b>Mooring Operation:</b> Recovery		<b>Mooring ID#:</b> PM936A	
<b>Deployed Location:</b> 02 01.44N 165 00.51E		<b>Deployed Date:</b> 10/10/2010	
<b>Recovered Location:</b> 02 01.1N 164 59.4E		<b>Recovered Date:</b> 11/11/2011	
<b>Previous Repair Date:</b> N/A			
<b>Sensors/Equipment Lost at Sea:</b> None			
<b>Sensors Damaged/Fouled:</b> TP500, off mount, mount broken.			
<b>Fishing/Vandalism:</b> 4 white buoys, lines, hooks, and shark attached to buoy; nilspin frayed by line at ~275m.			
<b>Sensors/Tubes Downloaded:</b> All sensors downloaded successfully.			
<b>General Comments:</b> None			
<b>Site Sensor Failures</b>	<b>Date Data Flagged</b>	<b>Why Data Flagged</b>	<b>Field Service Observations</b>
NA	NA	NA	NA

<b>Buoy Site:</b> 2N 165E Legacy	<b>Mooring Depth:</b> 4165m
<b>Mooring Operation:</b> Deployment	<b>Mooring ID#:</b> PM992A
<b>Deployed Location:</b> 02 00.59N 164 59.91E	<b>Deployed Date:</b> 11/12/2011
<b>Pre-Deployment On Deck Instrument Failures:</b> T250 failed on deck and was replaced.	
<b>Sensors/Equipment Lost at Sea:</b> None	
<b>Sensors Damaged During Deployment:</b> None	
<b>General Comments:</b> SSC failed after deployment and was replaced.	

<b>Buoy Site:</b> 0 165E Legacy	
<b>Mooring Operation:</b> Repair	<b>Mooring ID#:</b> PM958B
<b>Deployed Location:</b> 00 00.12N 164 59.92E	<b>Deployed Date:</b> 3/1/2011
<b>Repair Location:</b> 00 00.029N 164 59.73E	<b>Repair Date:</b> 11/12/11
<b>Sensors/Equipment Lost at Sea:</b> None	
<b>Sensors Damaged/Fouled:</b> None	
<b>Fishing Vandalism:</b> None	
<b>General Comments:</b> Installed new SSC and replaced TC10 with divers. Recovered TC10 could not be downloaded. New TC10 still reporting 0, left on station in record mode.	

<b>Buoy Site:</b> 0 165E ADCP	
<b>Mooring Operation:</b> Recovery	<b>Mooring ID#:</b> WA011
<b>Deployed Location:</b> 00 00.42N 165 12.36E	<b>Deployed Date:</b> 10/11/2010
<b>Recovered Location:</b> Lost at Sea	<b>Recovered Date:</b> 11/12/2011
<b>Previous Repair Date:</b> N/A	
<b>Sensors/Equipment Lost at Sea:</b> ADCP CD0001536230, CTD 25296, TP 33483 RF/light Beacon 31980, two releases CD0001694571 and 31705	
<b>Sensors Damaged/Fouled:</b> None	
<b>Fishing/Vandalism:</b> Unknown.	
<b>Sensors/Tubes Downloaded:</b> None, Lost at Sea	
<b>General Comments:</b> Lost at Sea, was deployed without a tracking device	

<b>Buoy Site:</b> 0 165E ADCP	<b>Mooring Depth:</b> 4387m
<b>Mooring Operation:</b> Deployment	<b>Mooring ID#:</b> WA012
<b>Deployed Location:</b> 00 00.96N 165 13.04E	<b>Deployed Date:</b> 11/13/2011
<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> 2S 165E Legacy			
<b>Mooring Operation:</b> Recovery		<b>Mooring ID#:</b> PM937A	
<b>Deployed Location:</b> 02 00.56S 164 59.19E		<b>Deployed Date:</b> 10/12/2010	
<b>Recovered Location:</b> 02 00.2S 165 00.5E		<b>Recovered Date:</b> 11/13/2011	
<b>Previous Repair Date:</b> None			
<b>Sensors/Equipment Lost at Sea:</b> T100			
<b>Sensors Damaged/Fouled:</b> None			
<b>Fishing/Vandalism:</b> Long line cuts in nilspin at several places, line wrapped around nilspin and nylon.			
<b>Sensors/Tubes Downloaded:</b> All sensors downloaded successfully except T100.			
<b>General Comments:</b> None			
<b>Site Sensor Failures</b>	<b>Date Data Flagged</b>	<b>Why Data Flagged</b>	<b>Field Service Observations</b>
T100	7/25/11	Data missing	Lost at sea
Rain	3/24/11, 4/25/11, 5/13/11, 8/19/11	High % of rain with 0 rain rate	NA

<b>Buoy Site:</b> 2S 165E Refresh			
<b>Mooring Operation:</b> Recovery		<b>Mooring ID#:</b> DM019A	
<b>Deployed Location:</b> 02 00.12S 164 58.03E		<b>Deployed Date:</b> 3/2/2011	
<b>Recovered Location:</b> 02 00.23S 164 59.91E		<b>Recovered Date:</b> 11/13/2011	
<b>Previous Repair Date:</b> None			
<b>Sensors/Equipment Lost at Sea:</b> All MET sensors lost at sea, tower missing			
<b>Sensors Damaged/Fouled:</b> None			
<b>Fishing/Vandalism:</b> Yes, Tower was unbolted and taken.			
<b>Sensors/Tubes Downloaded:</b> All ocean sensors were downloaded successfully except T200. No data to recover.			
<b>General Comments:</b> T25 meters slid down to 50m.			
<b>Site Sensor Failures</b>	<b>Date Data Flagged</b>	<b>Why Data Flagged</b>	<b>Field Service Observations</b>
T25	3/2/11	Slid to 50m depth	Slid to 50m depth
ATMP	3/29/11	Erratic	NA
RH	3/17/11	Data too high	NA
WDIR	3/11/11	Erratic	NA
WSPD	3/29/11	Data flat	NA
Buoy	8/26/11	Transmission failure	Tower unbolted and tube taken

<b>Buoy Site:</b> 2S 165E Refresh		<b>Mooring Depth:</b> 4465m	
<b>Mooring Operation:</b> Deployment		<b>Mooring ID#:</b> DM028A	
<b>Deployed Location:</b> 01 59.98S 164 59.96E		<b>Deployed Date:</b> 11/14/2011	
<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 165E			
<b>Mooring Operation:</b> Visit		<b>Mooring ID#:</b> PM959A	
<b>Deployed Location:</b> 05 00.02S 165 10.07E		<b>Deployed Date:</b> 3/3/2011	
<b>Visit Location:</b> 05 00.7S 165 10.0E		<b>Visit Date:</b> 11/15/2011	
<b>Sensors/Equipment Lost at Sea:</b> None			
<b>Sensors Damaged/Fouled:</b> None			
<b>Fishing Vandalism:</b> None			
<b>General Comments:</b> Buoy riding well in the water.			

<b>Buoy Site:</b> 8S 165E Legacy			
<b>Mooring Operation:</b> Recovery		<b>Mooring ID#:</b> PM938B	
<b>Deployed Location:</b> 07 59.85S 164 51.27E		<b>Deployed Date:</b> 10/19/2010	
<b>Recovered Location:</b> 08 01.8S 164 47.2E		<b>Recovered Date:</b> 11/16/2011	
<b>Previous Repair Date:</b> 3/4/2011			
<b>Sensors/Equipment Lost at Sea:</b> TP500.			
<b>Sensors Damaged/Fouled:</b> T25, T200			
<b>Fishing/Vandalism:</b> Long line gear cuts in nilspin at 75 m sensor and around 425m.			
<b>Sensors/Tubes Downloaded:</b> All sensors downloaded successfully except TP500.			
<b>General Comments:</b> None			
<b>Site Sensor Failures</b>	<b>Date Data Flagged</b>	<b>Why Data Flagged</b>	<b>Field Service Observations</b>
TP500	7/19/11	Data missing	Lost at sea

<b>Buoy Site:</b> 8S 165E Refresh			
<b>Mooring Operation:</b> Recovery		<b>Mooring ID#:</b> DM014A	
<b>Deployed Location:</b> 08 02.36S 164 48.81E		<b>Deployed Date:</b> 10/19/2010	
<b>Recovered Location:</b> 08 02.11S 164 47.61E		<b>Recovered Date:</b> 11/16/2011	
<b>Previous Repair Date:</b> None			
<b>Sensors/Equipment Lost at Sea:</b> None			
<b>Sensors Damaged/Fouled:</b> TP500 was flooded, SSC fouled.			
<b>Fishing/Vandalism:</b> 3/8" fishing line wrapped around the bridle, fishing gear on the buoy. Vessel sighted within 3 nm of operation.			
<b>Sensors/Tubes Downloaded:</b> All sensors downloaded successfully except TP500.			
<b>General Comments:</b> A white fishing vessel at the start of operations was 3 nm away and lingered for several hours and finally left. No communications were established.			
<b>Site Sensor Failures</b>	<b>Date Data Flagged</b>	<b>Why Data Flagged</b>	<b>Field Service Observations</b>
TP500	6/14/11	Data missing, then zero	Sensor flooded
T25-TP300	9/18/11	Data missing	NA

<b>Buoy Site:</b> 8S 165E Refresh		<b>Mooring Depth:</b> 3893m	
<b>Mooring Operation:</b> Deployment		<b>Mooring ID#:</b> DM029A	
<b>Deployed Location:</b> 08 01.53S 164 46.80E		<b>Deployed Date:</b> 11/16/2011	
<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> 8S 180 Legacy	
<b>Mooring Operation:</b> Repair	<b>Mooring ID#:</b> PM960B
<b>Deployed Location:</b> 07 58.84S 179 50.81W	<b>Deployed Date:</b> 3/9/2011
<b>Visit Location:</b> 07 59.5S 179 52.0W	<b>Visit Date:</b> 11/21/2011
<b>Sensors/Equipment Lost at Sea:</b> None	
<b>Sensors Damaged/Fouled:</b> None	
<b>Fishing Vandalism:</b> None	
<b>General Comments:</b> Performed a tube swap. The recovered tube had 32mb of data.	

<b>Buoy Site:</b> 5S 180 Legacy			
<b>Mooring Operation:</b> Recovery	<b>Mooring ID#:</b> PM961A		
<b>Deployed Location:</b> 04 57.71S 179 52.83W	<b>Deployed Date:</b> 3/10/2011		
<b>Recovered Location:</b> 06 06.1S 171 41.2E	<b>Recovered Date:</b> 11/18/2011		
<b>Previous Repair Date:</b> None			
<b>Sensors/Equipment Lost at Sea:</b> Release lost at sea.			
<b>Sensors Damaged/Fouled:</b> None			
<b>Fishing/Vandalism:</b> Fishing line cuts on nilspin			
<b>Sensors/Tubes Downloaded:</b> All sensors downloaded successfully.			
<b>General Comments:</b> Buoy was adrift and all nylon was lost.			
<b>Site Sensor Failures</b>	<b>Date Data Flagged</b>	<b>Why Data Flagged</b>	<b>Field Service Observations</b>
NA	NA	NA	NA

<b>Buoy Site:</b> 5S 180 Legacy	<b>Mooring Depth:</b> 5672m
<b>Mooring Operation:</b> Deployment	<b>Mooring ID#:</b> PM993A
<b>Deployed Location:</b> 04 57.57S 179 53.75W	<b>Deployed Date:</b> 11/22/11
<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> 2S 180 Legacy			
<b>Mooring Operation:</b> Recovery		<b>Mooring ID#:</b> PM962A	
<b>Deployed Location:</b> 01 58.6S 179 53.4W		<b>Deployed Date:</b> 3/12/2011	
<b>Recovered Location:</b> 01 58.3S 179 53.8W		<b>Recovered Date:</b> 11/23/2011	
<b>Previous Repair Date:</b> None			
<b>Sensors/Equipment Lost at Sea:</b> None			
<b>Sensors Damaged/Fouled:</b> T25, T50			
<b>Fishing/Vandalism:</b> Fishing line wrapped around $\frac{3}{4}$ the length of nylon spool #4.			
<b>Sensors/Tubes Downloaded:</b> All sensors downloaded successfully.			
<b>General Comments:</b> None			
<b>Site Sensor Failures</b>	<b>Date Data Flagged</b>	<b>Why Data Flagged</b>	<b>Field Service Observations</b>
NA	NA	NA	NA

<b>Buoy Site:</b> 2S 180 Refresh			
<b>Mooring Operation:</b> Recovery		<b>Mooring ID#:</b> DM020A	
<b>Deployed Location:</b> 01 59.6S 179 50.1W		<b>Deployed Date:</b> 3/11/2011	
<b>Recovered Location:</b> 01 59.96S 179 50.62W		<b>Recovered Date:</b> 11/23/2011	
<b>Previous Repair Date:</b> None			
<b>Sensors/Equipment Lost at Sea:</b> All MET sensors were lost at sea, tower missing.			
<b>Sensors Damaged/Fouled:</b> T25, T150			
<b>Fishing/Vandalism:</b> Cuts in nilspin at 200 and 300 m.			
<b>General Comments:</b> T25 slid down the nilspin to 50m.			
<b>Sensors/Tubes Downloaded:</b> Tube not downloaded. Lost at sea.			
<b>Site Sensor Failures</b>	<b>Date Data Flagged</b>	<b>Why Data Flagged</b>	<b>Field Service Observations</b>
Buoy	3/17/11	Data missing	Tower unbolted and tube taken

<b>Buoy Site:</b> 2S 180 Refresh		<b>Mooring Depth:</b> 5341m	
<b>Mooring Operation:</b> Deployment		<b>Mooring ID#:</b> DM030A	
<b>Deployed Location:</b> 01 59.45S 179 52.28W		<b>Deployed Date:</b> 11/24/2011	
<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> 0 180 Legacy			
<b>Mooring Operation:</b> Recovery		<b>Mooring ID#:</b> PM940A	
<b>Deployed Location:</b> 00 02.42N 179 53.56W		<b>Deployed Date:</b> 10/25/2010	
<b>Recovered Location:</b> 0 01.7N179 53.5W		<b>Recovered Date:</b> 11/24/2011	
<b>Previous Repair Date:</b> None			
<b>Sensors/Equipment Lost at Sea:</b> TP300, TP500.			
<b>Sensors Damaged/Fouled:</b> T250			
<b>Fishing/Vandalism:</b> Fishing line cuts on nilspin at 300m and 500m			
<b>Sensors/Tubes Downloaded:</b> All sensors downloaded successfully except TP300 and TP500.			
<b>General Comments:</b> None			
<b>Site Sensor Failures</b>	<b>Date Data Flagged</b>	<b>Why Data Flagged</b>	<b>Field Service Observations</b>
TP300	3/5/11	Data missing	Lost at sea
TP500	10/31/11	Data missing	Lost at sea

<b>Buoy Site:</b> 0 180 Refresh		<b>Mooring Depth:</b> 5398m	
<b>Mooring Operation:</b> Deployment		<b>Mooring ID#:</b> DM031A	
<b>Deployed Location:</b> 00 01.88N 179 54.97W		<b>Deployed Date:</b> 11/25/2011	
<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> 2N 180 Legacy			
<b>Mooring Operation:</b> Recovery		<b>Mooring ID#:</b> PM963A	
<b>Deployed Location:</b> 02 3.59N 179 48.47W		<b>Deployed Date:</b> 3/14/2011	
<b>Recovered Location:</b> 02 01.0N 179 50.3W		<b>Recovered Date:</b> 11/27/2011	
<b>Previous Repair Date:</b> None			
<b>Sensors/Equipment Lost at Sea:</b> T25, T50, T75, TP500			
<b>Sensors Damaged/Fouled:</b> None			
<b>Fishing/Vandalism:</b> Fishing line cuts over all of nilspin			
<b>Sensors/Tubes Downloaded:</b> All downloaded successfully except for lost at sensors noted above.			
<b>General Comments:</b> None			
<b>Site Sensor Failures</b>	<b>Date Data Flagged</b>	<b>Why Data Flagged</b>	<b>Field Service Observations</b>
T25	9/18/11	Data missing	Lost at sea
T50	11/27/11	Data missing	Lost at sea
T75	9/30/11	Data missing	Lost at sea
TP500	9/24/11	Data missing	Lost at sea

<b>Buoy Site:</b> 2N 180 Legacy	<b>Mooring Depth:</b> 5486m
<b>Mooring Operation:</b> Deployment	<b>Mooring ID#:</b> PM994A
<b>Deployed Location:</b> 02 02.08N 179 50.15W	<b>Deployed Date:</b> 11/26/2011
<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> T25 out on flyby	

<b>Buoy Site:</b> 5N 180 Legacy			
<b>Mooring Operation:</b> Recovery		<b>Mooring ID#:</b> PM964A	
<b>Deployed Location:</b> 05 00.04N 179 53.99W		<b>Deployed Date:</b> 3/15/2011	
<b>Recovered Location:</b> 04 59.3N 179 53.9W		<b>Recovered Date:</b> 11/28/2011	
<b>Previous Repair Date:</b> None			
<b>Sensors/Equipment Lost at Sea:</b> T100			
<b>Sensors Damaged/Fouled:</b> None			
<b>Fishing/Vandalism:</b> Fishing line cuts in upper nilspin (T125) but not to core			
<b>Sensors/Tubes Downloaded:</b> All sensors downloaded successfully except for T100.			
<b>General Comments:</b> None			
<b>Site Sensor Failures</b>	<b>Date Sensors Flagged</b>	<b>Why Data Flagged</b>	<b>Field Service Observations</b>
T100	NA	Data missing	Lost at Sea
Winds	4/23/11	180 deg out	NA
RH	10/20/11	Data too high	NA

<b>Buoy Site:</b> 5N 180 Legacy	<b>Mooring Depth:</b> 5687m
<b>Mooring Operation:</b> Deployment	<b>Mooring ID#:</b> PM995A
<b>Deployed Location:</b> 04 59.27N 179 53.33W	<b>Deployed Date:</b> 11/29/2011
<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> No poison pucks deployed on SSC.	

<b>Buoy Site:</b> 8N 180 Legacy			
<b>Mooring Operation:</b> Recovery		<b>Mooring ID#:</b> PM941B	
<b>Deployed Location:</b> 08 00.61N 179 47.07W		<b>Deployed Date:</b> 10/28/2010	
<b>Recovered Location:</b> 07 58.1N 179 51.7W		<b>Recovered Date:</b> 11/30/2011	
<b>Previous Repair Date:</b> 3/17/2011			
<b>Sensors/Equipment Lost at Sea:</b> TP300			
<b>Sensors Damaged/Fouled:</b> None			
<b>Fishing/Vandalism:</b> Cuts in nilspin just below socket and abrasions and cuts under TP300 sensor but not to core.			
<b>Sensors/Tubes Downloaded:</b> All sensors downloaded successfully except TP300.			
<b>General Comments:</b> None			
<b>Site Sensor Failures</b>	<b>Date Sensors Flagged</b>	<b>Why Data Flagged</b>	<b>Field Service Observations</b>
TP300	5/3/11	Data missing	Lost at Sea

<b>Buoy Site:</b> 8N 180 Legacy		<b>Mooring Depth:</b> 5954m	
<b>Mooring Operation:</b> Deployment		<b>Mooring ID#:</b> PM996A	
<b>Deployed Location:</b> 07 59.54N 179 52.01W		<b>Deployed Date:</b> 11/30/2011	
<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> T150 out on flyby			

## 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>
0801.913N 16508.263E	11/9/11	KA70011	3000m
0659.319N 16505.420E	11/9/11	KA70021	1000m
0559.810N 16503.237E	11/9/11	KA70031	1000m
0504.500N 16447.976E	11/10/11	KA70041	1000m

0359.939N 16501.799E	11/11/11	KA70051	1000m
0259.774N 16500.835E	11/11/11	KA70061	1000m
0159.406N 16457.265E	11/12/11	KA70071	1000m
0059.569N 16458.825E	11/12/11	KA70081	1000m
0000.034S 16457.003E	11/12/11	KA70091	3000m
0100.750S 16505.834E	11/13/11	KA70101	1000m
0158.758S 16458.556E	11/13/11	KA70111	1000m
0300.385S 16503.146E	11/14/11	KA70121	1000m
0359.745S 16506.041E	11/14/11	KA70131	1000m
0502.619S 16510.267E	11/15/11	KA70141	1000m
0559.284S 16502.602E	11/15/11	KA70151	1000m
0659.987S 16454.589E	11/15/11	KA70161	1000m
0801.454S 16444.845E	11/16/11	KA70171	3000m
0756.333S 17951.779W	11/21/11	KA70181	3000m
0659.885S 17952.146W	11/21/11	KA70191	1000m
0559.857S 17953.481W	11/21/11	KA70201	1000m
0457.363S 17954.859W	11/22/11	KA70211	1000m
0359.663S 17954.924W	11/22/11	KA70221	1000m
0259.736S 17954.887W	11/22/11	KA70231	1000m
0159.862S 17958.261W	11/23/11	KA70241	1000m
0059.667S 17952.096W	11/24/11	KA70251	1000m
0002.687N 17957.130W	11/25/11	KA70261	3000m
0100.319N 17953.064W	11/26/11	KA70271	1000m
0159.648N 17951.807W	11/26/11	KA70281	1000m
0300.617N 17951.693W	11/27/11	KA70291	1000m
0400.218N 17952.315W	11/27/11	KA70301	1000m
0459.605N 17956.935W	11/29/11	KA70311	1000m
0559.976N 17953.070W	11/29/11	KA70321	1000m
0659.831N 17952.347W	11/29/11	KA70331	1000m
0755.901N 17950.225W	11/30/11	KA70341	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

Two (2) Argo float was 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>
0502.460S 16510.130E	11/15/11	5281	
0801.163S 16446.884E	11/17/11	4635	

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

Thirteen (13) 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>
0359.903N 16501.619E	11/11/11	36639	
0159.115N 16457.014E	11/12/11	36510	
0000.225N 16459.985E	11/12/11	36645	
0000.252N 16500.058E	11/12/11	36646/7	
0200.466S 16459.814E	11/14/11	36625	
0400.105S 16506.227E	11/14/11	36643	
0359.182S 17955.068W	11/22/11	36646	
0200.265S 17953.479W	11/24/11	36725	
0001.857N 17955.240W	11/25/11	36620	
0001.856N 17955.242W	11/25/11	36611	
0202.119N 17952.602W	11/27/11	36622	
0400.663N 17952.258W	11/27/11	36644	