

TROPICAL ATMOSPHERE-OCEAN (TAO) PROGRAM
FINAL CRUISE REPORT
KA-12-03

Area: Equatorial Pacific between 8°N and 8°S latitude along 170°W Longitude, 2°N to 8°S Latitude along 180° Longitude, and 8°S and 8°N latitude along 155°W.

Itinerary:

KA-12-03 DEP *May 7, 2012, Honolulu, HI*
ARR *May 29, 2012, Apia, Samoa*
DEP *June 2, 2012, Apia, Samoa*
ARR *June 19, 2012, 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. The buoys' deployment lifecycles are up to 18 months to ensure at least one year of data collection can be completed.

NDBC Points of Contact:

NDBC Program Manager

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TAO Cruise Objective and Plan:

The objective of this cruise was the maintenance of the TAO Array along the 170°W, a portion of the 180°, and the 155°W meridians.

The scientific complement for the cruise embarked at Honolulu, HI on May 4, 2012. The ship departed on May 7, 2012 and conducted operations as listed in Section 2.1. The ship arrived in Honolulu, HI on June, 19, 2012.

1.0 PERSONNEL

1.1 CRUISE LEAD AND PARTICIPATING SCIENTISTS:

Cruise Lead: Brian Lake.

Participating Scientists:

Name	Gender	Nationality	Affiliation
Brian Lake	M	US	NOAA/NDBC
William Thompson	M	US	NOAA/NDBC
James Houston	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 times in this summary report are Coordinated Universal Time (UTC):

Cruise Summary

Buoy Site: 8N 170W ATLAS	
Mooring Operation: Recovery	Mooring ID#: PM956B
Deployed Location: 08 00.05N 170 02.21W	Deployed Date: 2/9/2011
Recovered Location: 07 59.244N 170 04.1W	Recovered Date: 5/12/2012
Previous Repair Date: 10/23/11	
Sensors/Equipment Lost at Sea: N/A	
Sensors Damaged/Fouled: TP500 broken module mount.	

Fishing/Vandalism: None			
Sensors/Tubes Downloaded: All sensors downloaded successfully except T125, dead battery.			
General Comments: None			
Site Sensor Failures	Date Data Flagged	Why Data Flagged	Field Service Observations
T125	3/31/11	Data missing	Dead battery

Buoy Site: 8N 170W Refresh	Mooring Depth: 5535 m
Mooring Operation: Deployment	Mooring ID#: DM038A
Deployed Location: 08 00.26N 170 02.72W	Deployed Date: 5/13/2012
Pre-Deployment On Deck Instrument Failures: None	
Sensors/Equipment Lost at Sea: None	
Sensors Damaged During Deployment: None	
General Comments: Routine deployment.	

Buoy Site: 5N 170W			
Mooring Operation: Repair	Mooring ID#: PM990A		
Deployed Location: 05 00.7N 170 00.97W	Deployed Date: 10/22/2011		
Repair Location: 05 00.7N 170 01.7W	Repair Date: 5/14/2012		
Sensors/Equipment Lost at Sea: None			
Sensors Damaged/Fouled: None			
Fishing Vandalism: None			
General Comments: Dive op to replace T25 aborted due to unsafe sea conditions.			
Site Sensor Failures	Date Data Flagged	Why Data Flagged	Field Service Observations
T25	2/1/12	Data missing	None

Buoy Site: 2N 170W Refresh	
Mooring Operation: Repair	Mooring ID#: DM026B
Deployed Location: 01 58.09N 170 01.89W	Deployed Date: 10/20/2011
Repair Location: 01 58.4N 170 01.1W	Repair Date: 5/15/2012
Sensors/Equipment Lost at Sea: None	
Sensors Damaged/Fouled: None	
Fishing Vandalism: None	
General Comments: Replaced anemometer and ATRH sensor. Anemometer stanchion showing signs of wear. It was re-secured	

Site Sensor Failures	Date Data Flagged	Why Data Flagged	Field Service Observations
Wind	12/31/11	WDIR erratic	None
ATMP	4/19/12	Data drifted low	None
RH	12/24/11	Data drifted high	None

Buoy Site: 0 170W ATLAS CO2			
Mooring Operation: Recovery		Mooring ID#: PM954A	
Deployed Location: 00 0.7S 170 02.82W		Deployed Date: 2/5/2011	
Recovered Location: 00 01.1S 170 03.8W		Recovered Date: 5/15/2012	
Previous Repair Date: N/A			
Sensors/Equipment Lost at Sea: SSC, TC75, TC100			
Sensors Damaged/Fouled: TC5, TC10, TC25, TC50, TC125, V10, V50, V100, V150, T150			
Fishing/Vandalism: None			
Sensors/Tubes Downloaded: All recovered sensors downloaded successfully.			
General Comments: None.			
Site Sensor Failures	Date Data Flagged	Why Data Flagged	Field Service Observations
SSC	4/13/12	Data missing	Lost at sea
TC75	9/17/11	Data missing	Lost at sea
TC100	8/6/11	Data missing	Lost at sea
V100	9/6/11	Data missing	Lost at sea

Buoy Site: 0 170W ATLAS CO2		Mooring Depth: 5612 m	
Mooring Operation: Deployment		Mooring ID#: QM012A	
Deployed Location: 00 01.37S 170 01.93W		Deployed Date: 5/16/2012	
Pre-Deployment On Deck Instrument Failures: None			
Sensors/Equipment Lost at Sea: None			
Sensors Damaged During Deployment: None			
General Comments: Routine deployment.			

Buoy Site: 0 170W Refresh Flux		Mooring Depth: 5610 m	
Mooring Operation: Deployment		Mooring ID#: DM039A	
Deployed Location: 00 03.34S 170 04.11W		Deployed Date: 5/15/2012	
Pre-Deployment On Deck Instrument Failures: None			
Sensors/Equipment Lost at Sea: None			

Sensors Damaged During Deployment: None
General Comments: Sonteks at 52 m and 102 m were deployed with dummy plugs as the SBE44 cables were split and no spares were available.

Buoy Site: 0 170W ADCP	
Mooring Operation: Recovery	Mooring ID#: KA016
Deployed Location: 00 00.2S 169 44.53W	Deployed Date: 10/19/2011
Recovered Location: 00 00.22S 169 44.53W	Recovered Date: 5/16/2012
Previous Repair Date: None	
Sensors/Equipment Lost at Sea: None	
Sensors Damaged/Fouled: None	
Fishing/Vandalism: None	
Sensors/Tubes Downloaded: The ADCP was downloaded successfully. The TP module had many data errors – sent back to the lab for download. No cable for the IM CTD so it was sent home for downloading.	
General Comments: None.	

Buoy Site: 0 170W ADCP	Mooring Depth: 5409 m
Mooring Operation: Deployment	Mooring ID#: KA017
Deployed Location: 00 00.364S 169 44.195W	Deployed Date: 5/17/2012
Pre-Deployment On Deck Instrument Failures: None	
Sensors/Equipment Lost at Sea: None	
Sensors Damaged During Deployment: None	
General Comments: None	

Buoy Site: 2S 170W Refresh	
Mooring Operation: Recovery	Mooring ID#: DM018B
Deployed Location: 02 09.1S 170 00.59W	Deployed Date: 2/4/2011
Recovered Location: 02 08.98S 170 00.90W	Recovered Date: 5/17/2012
Previous Repair Date: 10/18/2011	
Sensors/Equipment Lost at Sea: None	
Sensors Damaged/Fouled: SSC, T25, T50 fouled. T125 slid down to 150 m.	

Fishing/Vandalism: Long-line gear at 100 m sensor.			
Sensors/Tubes Downloaded: All sensors downloaded successfully except T100 – battery dislodged and reset the data.			
General Comments: None.			
Site Sensor Failures	Date Data Flagged	Why Data Flagged	Field Service Observations
T125	11/5/11	Suspected sensor slid to 150m depth	Sensor slid to 150m depth
T25	12/6/11	Data stuck on one value	Fouled

Buoy Site: 2S 170W Refresh	Mooring Depth: 4939 m
Mooring Operation: Deployment	Mooring ID#: DM040A
Deployed Location: 02 08.58S 170 00.57W	Deployed Date: 5/18/2012
Pre-Deployment On Deck Instrument Failures: None	
Sensors/Equipment Lost at Sea: None	
Sensors Damaged During Deployment: None	
General Comments: Routine deployment.	

Buoy Site: 5S 170W	
Mooring Operation: Visit	Mooring ID#: PM989A
Deployed Location: 04 59.51S 170 0.45W	Deployed Date: 10/17/2011
Visit Location: 04 59.21S 170 00.89W	Visit Date: 5/19/2012
Sensors/Equipment Lost at Sea: None	
Sensors Damaged/Fouled: None	
Fishing Vandalism: None	
General Comments: Buoy riding well in the water.	

Buoy Site: 2N 180 ATLAS	
Mooring Operation: Recovery	Mooring ID#: PM994A
Deployed Location: 02 02.08N 179 50.15W	Deployed Date: 11/26/11
Recovered Location: 02 01.7N 179 48.8W	Recovered Date: 5/22/2012

Previous Repair Date: None			
Sensors/Equipment Lost at Sea: None			
Sensors Damaged/Fouled: Anemometer missing tail. SSC and T25 fouled. TP500 slid down wire to 700 m.			
Fishing/Vandalism: Tower hardware loose or missing			
Sensors/Tubes Downloaded: All sensors downloaded successfully except the Tube, T25, and T150 – no communications.			
General Comments: None.			
Site Sensor Failures	Date Data Flagged	Why Data Flagged	Field Service Observations
Tube	1/20/12	No transmissions	No comms
T25	12/31/11	Data missing	No comms
T150	1/20/12	Data missing	No comms
TP500	1/20/12	Missing	Slipped to 700m

Buoy Site: 2N 180 Refresh	Mooring Depth: 5481 m
Mooring Operation: Deployment	Mooring ID#: DM041A
Deployed Location: 02 1.585N 179 48.104W	Deployed Date: 5/22/2012
Pre-Deployment On Deck Instrument Failures: None	
Sensors/Equipment Lost at Sea: None	
Sensors Damaged During Deployment: None	
General Comments: Routine deployment	

Buoy Site: 0 180 Refresh			
Mooring Operation: Repair		Mooring ID#: DM031B	
Deployed Location: 00 01.88N 179 54.977W		Deployed Date: 11/25/12011	
Repair Location: 00 02.7N 179 54.5W		Repair Date: 5/22/2012	
Sensors/Equipment Lost at Sea: Anemometer			
Sensors Damaged/Fouled: None			
Fishing Vandalism: None			
General Comments: Replaced ATRH and anemometer. Upper anemometer stanchion was replaced.			
Site Sensor Failures	Date Data Flagged	Why Data Flagged	Field Service Observations
Wind	1/4/12	WDIR erratic	Sensor missing
RH	1/1/12	Data drifted high	None

Buoy Site: 2S 180 Refresh	
Mooring Operation: Visit	Mooring ID#: DM030A
Deployed Location: 01 59.452S 179 52.283W	Deployed Date: 11/24/2011
Visit Location: 02 00.12S 179 52.16W	Visit Date: 5/23/2012
Sensors/Equipment Lost at Sea: None	
Sensors Damaged/Fouled: None	
Fishing Vandalism: None	
General Comments: Buoy riding well in the water.	

Buoy Site: 5S 180 ATLAS	
Mooring Operation: Repair	Mooring ID#: PM993B
Deployed Location: 04 57.577S 179 53.755W	Deployed Date: 11/22/2011
Repair Location: 04 57.5S 179 52.5W	Repair Date: 5/25/2012
Sensors/Equipment Lost at Sea: T25	
Sensors Damaged/Fouled: None	
Fishing Vandalism: None	
General Comments: Dive operation to replace T25 sensor.	

Buoy Site: 8S 180 ATLAS			
Mooring Operation: Recovery		Mooring ID#: PM960B	
Deployed Location: 07 58.848S 179 50.815W		Deployed Date: 3/9/2011	
Recovered Location: 07 58.856S 179 51.28W		Recovered Date: 5/25/2012	
Previous Repair Date: 11/21/2011			
Sensors/Equipment Lost at Sea: Anemometer, T250, TP300			
Sensors Damaged/Fouled: Tube and SSC damaged, SSC and T25 fouled			
Fishing/Vandalism: Yes			
Sensors/Tubes Downloaded: All sensors downloaded successfully except lost sensors T250 and TP300.			
General Comments: Upper mast hit, the antenna was ripped off. Everything hanging by wires. Anemometer gone.			
Site Sensor Failures	Date Data Flagged	Why Data Flagged	Field Service Observations
Wind	11/21/11	Vane zeroes out daily	Bird destroyed
T250	3/30/11	Data missing	Lost at sea
TP300	3/2/12	Data missing	Lost at sea

Buoy Site: 8S 180 Refresh	Mooring Depth: 5538 m
Mooring Operation: Deployment	Mooring ID#: DM042A
Deployed Location: 07 58.62S 179 51.043W	Deployed Date: 5/26/2012
Pre-Deployment On Deck Instrument Failures: T75 failed on deck.	
Sensors/Equipment Lost at Sea: None	
Sensors Damaged During Deployment: None	
General Comments: Routine deployment.	

Buoy Site: 8S 170W			
Mooring Operation: Recovery		Mooring ID#: PM953A	
Deployed Location: 08 00.3S 170 02.5W		Deployed Date: 2/2/2011	
Recovered Location: 08 01.5S 170 02.9W		Recovered Date: 6/4/2012	
Previous Repair Date: N/A			
Sensors/Equipment Lost at Sea: T200, TP300			
Sensors Damaged/Fouled: SSC, T25, T50 fouled			
Fishing/Vandalism: Yes, netting on SSC			
Sensors/Tubes Downloaded: All sensors downloaded successfully except lost sensors T200 and TP300.			
General Comments: None.			
Site Sensor Failures	Date Data Flagged	Why Data Flagged	Field Service Observations
T200	12/15/11	Data missing	Lost at sea
TP300	2/2/11	Data missing	Lost at sea
Salinity	2/15/12	Data erratic	Fouled, netting on sensor

Buoy Site: 8S 170W Refresh	Mooring Depth: 5386 m
Mooring Operation: Deployment	Mooring ID#: DM043A
Deployed Location: 08 00.53S 170 02.3W	Deployed Date: 6/5/2012
Pre-Deployment On Deck Instrument Failures: None	
Sensors/Equipment Lost at Sea: None	
Sensors Damaged During Deployment: None	
General Comments: Routine deployment.	

Buoy Site: 8S 155W Refresh	
Mooring Operation: Visit	Mooring ID#: DM025A
Deployed Location: 08 15.406S 155 00.047W	Deployed Date: 10/13/2011
Visit Location: 08 16.05S 155 01.4W	Visit Date: 6/9/2012
Sensors/Equipment Lost at Sea: None	
Sensors Damaged/Fouled: None	
Fishing Vandalism: None	
General Comments: Buoy riding low in the water.	

Buoy Site: 5S 155W			
Mooring Operation: Recovery		Mooring ID#: PM952B	
Deployed Location: 04 59.0S 154 59.0W		Deployed Date: 1/28//2011	
Recovered Location: 04 58.17S 154 59.69W		Recovered Date: 6/10/2012	
Previous Repair Date: 10/11/2011			
Sensors/Equipment Lost at Sea: T100, T125, T200, T250, TP500			
Sensors Damaged/Fouled: SSC, T25, T50, T75 fouled			
Fishing/Vandalism: Yes.			
Sensors/Tubes Downloaded: All sensors downloaded successfully except lost sensors noted above.			
General Comments: Many missing sensors and/or broken mounts. Cuts in Nilspin, large amount of fishing gear tangled in first spool of nylon.			
Site Sensor Failures	Date Data Flagged	Why Data Flagged	Field Service Observations
T100	11/17/11	Data missing	Lost at sea
T125	11/17/11	Data missing	Lost at sea
T200	10/19/11	Data missing	Lost at sea
T250	4/26/12	Data missing	Lost at sea
TP500	11/16/11	Data missing	Lost at sea

Buoy Site: 5S 155W Refresh		Mooring Depth: 5032 m	
Mooring Operation: Deployment		Mooring ID#: DM044A	
Deployed Location: 04 58.59S 154 59.21W		Deployed Date: 6/10/2012	
Pre-Deployment On Deck Instrument Failures: None			
Sensors/Equipment Lost at Sea: None			
Sensors Damaged During Deployment: None.			
General Comments: Routine deployment.			

Buoy Site: 2S 155W	
Mooring Operation: Visit	Mooring ID#: PM988A
Deployed Location: 01 58.89S 154 59.6W	Deployed Date: 10/11/2011
Visit Location: 01 58.5S 154 59.7W	Visit Date: 6/11/2012
Sensors/Equipment Lost at Sea: None	
Sensors Damaged/Fouled: None	
Fishing Vandalism: None	
General Comments: Buoy riding well in the water.	

Buoy Site: 0 155W ATLAS CO2			
Mooring Operation: Recovery		Mooring ID#: PM951B	
Deployed Location: 00 00.22S 154 56.91W		Deployed Date: 1/26/2011	
Recovered Location: 00 00.01S 154 56.8W		Recovered Date: 6/11/2012	
Previous Repair Date: 10/9/2011			
Sensors/Equipment Lost at Sea: TP300			
Sensors Damaged/Fouled: SSC, T25, T50 fouled			
Fishing/Vandalism: None			
Sensors/Tubes Downloaded: All sensors downloaded successfully except lost sensor TP300 and T150 due to dead batteries.			
General Comments: None			
Site Sensor Failures	Date Data Flagged	Why Data Flagged	Field Service Observations
T150	1/30/11	Data drifted low	No comms
TP300	2/2/12	Data missing	Lost at sea
Rain	5/27/12	High rain % with no rain-rate	None

Buoy Site: 0 155W Refresh CO2		Mooring Depth: 4638 m	
Mooring Operation: Deployment		Mooring ID#: DM045A	
Deployed Location: 00 00.065S 154 56.689W		Deployed Date: 6/12/2012	
Pre-Deployment On Deck Instrument Failures: None			
Sensors/Equipment Lost at Sea: None			
Sensors Damaged During Deployment: None			
General Comments: Routine deployment.			

Buoy Site: 2N 155W			
Mooring Operation: Repair		Mooring ID#: PM987B	
Deployed Location: 01 59.05N 154 57.45W		Deployed Date: 10/08/2011	
Repair Location: 01 58.6N 154 56.6W		Repair Date: 6/12/2012	
Sensors/Equipment Lost at Sea: None			
Sensors Damaged/Fouled: None			
Fishing Vandalism: None			
General Comments: Replaced tube and anemometer. TP500 not reporting.			
Site Sensor Failures	Date Data Flagged	Why Data Flagged	Field Service Observations
Tube	6/2/12	No transmissions	No comms

Buoy Site: 5N 155W ATLAS			
Mooring Operation: Recovery		Mooring ID#: PM950A	
Deployed Location: 04 59.9N 154 57.3W		Deployed Date: 1/24/2011	
Recovered Location: 04 59.744N 154 57.366W		Recovered Date: 6/13/2012	
Previous Repair Date: NA			
Sensors/Equipment Lost at Sea: T75			
Sensors Damaged/Fouled: SSC, T25, T50 fouled			
Fishing/Vandalism: Yes.			
Sensors/Tubes Downloaded: All sensors downloaded successfully except lost sensor T75.			
General Comments: Fishing line on second spool of nylon.			
Site Sensor Failures	Date Data Flagged	Why Data Flagged	Field Service Observations
T75	9/5/11	Data missing	Lost at sea
TP300	1/3/12	Pressure data erratic	None

Buoy Site: 5N 155W Refresh		Mooring Depth: 4591 m	
Mooring Operation: Deployment		Mooring ID#: DM046A	
Deployed Location: 05 00.4N 154 56.9W		Deployed Date: 6/14/2012	
Pre-Deployment On Deck Instrument Failures: None			
Sensors/Equipment Lost at Sea: None			
Sensors Damaged During Deployment: None			
General Comments: Routine deployment.			

Buoy Site: 8N 155W ATLAS			
Mooring Operation: Recovery		Mooring ID#: PM986A	
Deployed Location: 07 59.23N 154 59.18W		Deployed Date: 10/6/2011	
Recovered Location: 07 59.5N 155 00.756W		Recovered Date: 6/15/2012	
Previous Repair Date: NA			
Sensors/Equipment Lost at Sea: Tube, Wind, AT/RH			
Sensors Damaged/Fouled: SSC, T25, T50 fouled			
Fishing/Vandalism: Yes, Tower unbolted and top section cables cut			
Sensors/Tubes Downloaded: All recovered sensors downloaded successfully except T50, T100 and T150 – No communications.			
General Comments: None.			
Site Sensor Failures	Date Data Flagged	Why Data Flagged	Field Service Observations
Tube	12/5/11	No transmissions	Lost at sea
T50	10/6/11	Data missing	Fouled, No communications
T100	10/6/11	Data missing	No communications
T150	10/7/11	Data erratic	Swordfish bill caught on sensor & no communications
Salinity	10/15/11	Data drifted low	Fouled

Buoy Site: 8N 155W Refresh			
Mooring Operation: Recovery		Mooring ID#: DM017B	
Deployed Location: 07 56.4N 154 58.7W		Deployed Date: 1/22/2011	
Recovered Location: 07 56.553N 155 00.785W		Recovered Date: 6/15/2012	
Previous Repair Date: 10/6/2011			
Sensors/Equipment Lost at Sea: SSC on picklefork lost			
Sensors Damaged/Fouled: SSC damaged; SSC, T25, T50 fouled			
Fishing/Vandalism: None			
Sensors/Tubes Downloaded: All sensors downloaded successfully except lost SSC and T125 – shorted battery.			
General Comments: None.			
Site Sensor Failures	Date Data Flagged	Why Data Flagged	Field Service Observations
SSC	11/13/11	Data missing	Pickle-fork lost at sea
T125	8/8/11	Data missing	Dislodged battery

Buoy Site: 8N 155W Refresh	Mooring Depth: 5243 m
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Mooring Operation: Deployment	Mooring ID#: DM047A
Deployed Location: 07 58.83N 155 00.385W	Deployed Date: 6/15/2012
Pre-Deployment On Deck Instrument Failures: None	
Sensors/Equipment Lost at Sea: None	
Sensors Damaged During Deployment: None	
General Comments: Routine deployment.	

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:

CTD Operations				
Coordinates		Date	Cast #	Comments
0801.676N	17003.574W	5/12/12	KA30011	3000m
0501.650N	17003.351W	5/14/12	KA30021	1000m
0400.302N	17002.093W	5/14/12	KA30031	1000m
0300.890N	17001.756W	5/14/12	KA30041	1000m
0159.771N	17002.383W	5/15/12	KA30051	1000m
0100.232N	17002.035W	5/15/12	KA30061	1000m
0001.762N	16950.917W	5/16/12	KA30071	3000m
0100.142S	16951.901W	5/17/12	KA30081	1000m
0210.766S	17002.166W	5/17/12	KA30091	1000m
0259.975S	17001.218W	5/18/12	KA30101	1000m
0400.001S	17001.688W	5/18/12	KA30111	1000m
0459.337S	17002.726W	5/19/12	KA30121	1000m
0159.786N	17949.775W	5/22/12	KA30131	1000m
0003.606N	17956.314W	5/23/12	KA30142	1000m
0257.657S	17953.646W	5/24/12	KA30161	1000m
0400.223S	17954.113W	5/24/12	KA30171	1000m
0458.965S	17952.959W	5/25/12	KA30181	1000m
0559.816S	17952.881W	5/25/12	KA30191	1000m
0700.003S	17951.933W	5/25/12	KA30201	1000m
0756.665S	17951.665W	5/26/12	KA30211	3000m
0803.389S	17004.272W	6/4/12	KA30221	3000m
0814.781S	15501.761W	6/9/12	KA30231	3000m
0659.857S	15501.046W	6/9/12	KA30241	1000m
0559.818S	15500.405W	6/9/12	KA30251	1000m

0458.780S	15500.953W	6/10/12	KA30261	1000m
0355.225S	15500.369W	6/10/12	KA30271	1000m
0259.529S	15500.290W	6/10/12	KA30281	1000m
0156.294S	15500.046W	6/11/12	KA30291	1000m
0100.058S	15459.936W	6/11/12	KA30301	1000m
0000.858N	15459.100W	6/12/12	KA30311	3000m
0059.874N	15459.844W	6/12/12	KA30321	1000m
0159.694N	15458.173W	6/12/12	KA30331	1000m
0259.873N	15459.372W	6/13/12	KA30341	1000m
0359.939N	15458.529W	6/13/12	KA30351	1000m
0500.519N	15458.173W	6/14/12	KA30361	1000m
0600.080N	15458.483W	6/14/12	KA30371	1000m
0700.179N	15458.790W	6/14/12	KA30381	1000m
0801.899N	15500.414W	6/15/12	KA30391	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

Thirteen (13) 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

or

Elizabeth Steffen, NOAA/PMEL
 Tel: (206) 526-6747
 E-mail: pmel_floats@noaa.gov

The following outlines the Argo floats deployed during the cruise:

ARGO Floats				
Coordinates		Date	SN#	Comments
0759.718N	17003.419W	5/13/12	F0145	
0600.446N	17002.835W	5/13/12	F0146	
0400.145N	17002.988W	5/14/12	F0147	
0200.333N	17001.886W	5/15/12	F0148	
0000.167S	16943.880W	5/17/12	F0149	
0001.384N	17722.937W	5/21/12	F0150	
0200.393N	17949.622W	5/22/12	5407	

0004.647N 17957.870W	5/23/12	5842	
0201.507S 17953.793W	5/24/12	5843	
0155.944S 15459.849W	6/11/12	F0144	
0001.245N 15459.224W	6/12/12	F0143	
0159.497N 15458.442W	6/13/12	F0140	
0359.894N 15458.550W	6/13/12	F0141	

Atlantic Oceanographic and Meteorological Laboratory (AMOL) Surface Drifting Floats

Thirty-nine (39) 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

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

AOML Floats				
Coordinates		Date	SN#	Comments
0759.682N	17003.443W	5/13/12	42477	
0502.228N	17003.438W	5/14/12	41347	
0502.245N	17003.437W	5/14/12	39825	
0200.306N	17001.971W	5/15/12	41069	
0200.309N	17001.960W	5/15/12	41407	
0206.354S	16959.809W	5/18/12	41806	
0206.368S	16959.814W	5/18/12	42471	
0459.074S	17002.550W	5/19/12	41068	
0459.068S	17002.543W	5/19/12	43563	
0200.243N	17949.673W	5/22/12	43567	
0200.250N	17949.670W	5/22/12	101793	
0201.516S	17953.778W	5/24/12	101911	
0201.516S	17953.778W	5/24/12	101992	
0455.704S	17953.817W	5/25/12	101817	
0455.787S	17953.778W	5/25/12	101820	
0756.710S	17951.618W	5/26/12	101913	

0756.735S	17951.611W	5/26/12	101791	
0759.710S	16959.940W	6/5/12	101532	
0759.721S	16959.963W	6/5/12	101915	
0814.523S	15502.046W	6/9/12	42474	
0814.510S	15502.041W	6/9/12	42676	
0458.382S	15501.068W	6/10/12	41883	
0458.376S	15501.067W	6/10/12	41416	
0155.506S	15459.955W	6/11/12	41401	
0155.456S	15459.964W	6/11/12	43559	
0359.905N	15458.542W	6/13/12	42651	
0359.907N	15458.542W	6/13/12	43613	
0500.851N	15458.139W	6/14/12	42642	
0500.855N	15458.139W	6/14/12	41799	
0701.049N	15459.235W	6/14/12	101836	
0701.062N	15459.234W	6/14/12	42645	
0803.085N	15501.042W	6/15/12	40875	
0803.089N	15501.038W	6/15/12	42644	
0859.696N	15512.175W	6/16/12	41805	
0859.696N	15512.175W	6/16/12	43551	