

TROPICAL ATMOSPHERE-OCEAN (TAO) PROGRAM  
FINAL CRUISE REPORT  
RR-16-01

Area: Equatorial Pacific: 8°N 165°E to 8°S 165°E and 8°S 180° to 8°N 180°

Itinerary:

RR-16-01            DEP    *July 3, 2016, Apra Harbor, Guam*  
                          ARR    *August 5, 2016, 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 Ships and other contract vessels.

**NDBC Points of Contact**

NDBC Operations Branch Chief	NDBC Operations Manager
Bill Hansen	Jeff Jenner
National Data Buoy Center	National Data Buoy Center
Building 3205	Building 3205
Stennis Space Center, MS 39529	Stennis Space Center, MS 39529
228-688-3804	228-688-2784
Email: <a href="mailto:bill.hansen@noaa.gov">bill.hansen@noaa.gov</a>	Email: <a href="mailto:jeff.jenner@noaa.gov">jeff.jenner@noaa.gov</a>

TAO Cruise Objective and Plan:

The objective of this cruise was the maintenance of the TAO Array along the 165°E and 180° meridians. Dart station 52406 was also turned around on this cruise. In addition to regular operations, drifting Weather buoy 51001 and 51002 were recovered.

The scientific complement for the cruise embarked at Apra Harbor, Guam on July 3, 2016. The ship departed on July 3, 2016 and conducted operations as listed in Section 2.1. The ship arrived at Honolulu, HI on August 5, 2016.

## 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
James Rauch	M	US	NOAA/NDBC
Edward Kendrick	M	US	NOAA/NDBC
James Turner	M	US	NOAA/NDBC
Sophia Montalvo	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):

### Cruise Summary

<b>Buoy Site:</b> 8N 165E			
<b>Mooring Operation:</b> Recovery		<b>Mooring ID#:</b> DM106	
<b>Deployed Location:</b> 08-04.11N/165-09.18E		<b>Deployed Date:</b> 10/31/14	
<b>Recovered Location:</b> 08-02.11N/165-08.88		<b>Recovered Date:</b> 7/7/16	
<b>Sensors/Equipment Lost at Sea:</b> None			
<b>Sensors Damaged/Fouled:</b> SSC, T25 fouled with sea growth			
<b>Fishing/Vandalism:</b> Longline on topsection socket, top section severed.			
<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>
SSC	4/28/16	Data low	Fouled- Growth

<b>Buoy Site:</b> 8N 165E	<b>Mooring Depth:</b> 5226 m
---------------------------	------------------------------

<b>Mooring Operation:</b> Deployment	<b>Mooring ID#:</b> DM190
<b>Deployed Location:</b> 08-02.74N/165-08.54E	<b>Deployed Date:</b> 7/8/16
<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> 5N 165E			
<b>Mooring Operation:</b> Recovery		<b>Mooring ID#:</b> DM105	
<b>Deployed Location:</b> 05-02.50N/164-50.21E		<b>Deployed Date:</b> 7/8/16	
<b>Recovered Location:</b> 05-02.15N/164-52.31E		<b>Recovered Date:</b> 7/8/16	
<b>Sensors/Equipment Lost at Sea:</b> None			
<b>Sensors Damaged/Fouled:</b> SSC, T25, T50 fouled with sea growth			
<b>Fishing/Vandalism:</b> None			
<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>
RH	4/20/15	Saturated	
1m Salinity	6/10/15	Low	Fouled, Top section severed
AT	5/30/15	Erratic	

<b>Buoy Site:</b> 5N 165E	<b>Mooring Depth:</b> 4769 m
<b>Mooring Operation:</b> Deployment	<b>Mooring ID#:</b> DM191
<b>Deployed Location:</b> 05-02.96N/164-51.99E	<b>Deployed Date:</b> 7/9/16
<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> 2N 165E			
<b>Mooring Operation:</b> Recovery		<b>Mooring ID#:</b> DM104	
<b>Deployed Location:</b> 02-00.75N/165-07.80E		<b>Deployed Date:</b> 10/29/14	
<b>Recovered Location:</b> Drifting		<b>Recovered Date:</b> NA	
<b>Sensors/Equipment Lost at Sea:</b> Drifting			
<b>Sensors Damaged/Fouled:</b> NA			
<b>Fishing/Vandalism:</b> Entire mooring Lost at Sea.			
<b>General Comments:</b> Acoustic release found horizontal on sea floor.			
<b>Site Sensor Failures</b>	<b>Date Data Flagged</b>	<b>Why Data Flagged</b>	<b>Field Service Observations</b>

RH	12/26/15	Data high	
1m Salinity	1/1/16	Data low	
Hull/ Mooring	1/31/16	Adrift	

<b>Buoy Site:</b> 2N 165E	<b>Mooring Depth:</b> 4168 m
<b>Mooring Operation:</b> Deployment	<b>Mooring ID#:</b> DM192
<b>Deployed Location:</b> 02-00.00N/165-08.01E	<b>Deployed Date:</b> 7/10/16
<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> 0 165E Flux/CO2			
<b>Mooring Operation:</b> Recovery		<b>Mooring ID#:</b> DM103	
<b>Deployed Location:</b> 00-01.38N/165-01.56E		<b>Deployed Date:</b> 10/27/14	
<b>Recovered Location:</b> 00-02.88N/164-57.60E		<b>Recovered Date:</b> 7/11/16	
<b>Sensors/Equipment Lost at Sea:</b> None			
<b>Sensors Damaged/Fouled:</b> SSC, TC5, TC10 fouled with sea growth, SSC connector broken, TC5 conductivity cage held on by one screw.			
<b>Fishing/Vandalism:</b> None			
<b>General Comments:</b> Top section severed, TP500 slid down wire to 700 m.			
<b>Site Sensor Failures</b>	<b>Date Data Flagged</b>	<b>Why Data Flagged</b>	<b>Field Service Observations</b>
Velocity at 50m	10/28/14	Bad. Not released	
TP500	7/6/15	Sensor slipped	Slid to 700m
RH	10/15/15	Data high	
Rain	11/10/15	Data missing	
1m,5m,10m,100m Salinity	1/30/16	Erratic/ low	Fouled, Connector broke
Inductive sensors	5/24/16	All missing	Downloads- "No Comms"
125m, 100m Salinity	1/9/15	Data failed	
Velocity at 10m	1/18/15	Data failed	

<b>Buoy Site:</b> 0 165E Flux/CO2	<b>Mooring Depth:</b> 4414 m
<b>Mooring Operation:</b> Deployment	<b>Mooring ID#:</b> DM193
<b>Deployed Location:</b> 00-01.44N/165-02.24E	<b>Deployed Date:</b> 7/11/16
<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> 50 m Sontek failed on deployment, CO2 system #32
---

<b>Buoy Site:</b> 0 165E ADCP			
<b>Mooring Operation:</b> Recovery		<b>Mooring ID#:</b> WA014	
<b>Deployed Location:</b> 00-00.95N/165-13.23E		<b>Deployed Date:</b> 10/28/14	
<b>Recovered Location:</b> 00-00.192N/169-43.84W		<b>Recovered Date:</b> 11/30/15	
<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 Data Flagged</b>	<b>Why Data Flagged</b>	<b>Field Service Observations</b>

<b>Buoy Site:</b> 0 165E ADCP		<b>Mooring Depth:</b> 4398 m	
<b>Mooring Operation:</b> Deployment		<b>Mooring ID#:</b> WA015	
<b>Deployed Location:</b> 00-00.52N/165-13.45E		<b>Deployed Date:</b> 7/12/16	
<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 165E			
<b>Mooring Operation:</b> Recovery		<b>Mooring ID#:</b> DM148	
<b>Deployed Location:</b> 02-00.18S/165-00.41E		<b>Deployed Date:</b> 8/7/15	
<b>Recovered Location:</b> 02-00.30S/164-59.93E		<b>Recovered Date:</b> 7/12/16	
<b>Sensors/Equipment Lost at Sea:</b> None			
<b>Sensors Damaged/Fouled:</b> Anemometer mast broken, SSC fouled with sea growth			
<b>Fishing/Vandalism:</b> None			
<b>General Comments:</b> Several sensors out of their mount.			
<b>Site Sensor Failures</b>	<b>Date Data Flagged</b>	<b>Why Data Flagged</b>	<b>Field Service Observations</b>
Anemometer	1/6/16	Low wspd, WDIR off	Mast broken
1m Salinity	2/5/16	Data high	Fouled

<b>Buoy Site:</b> 2S 165E TPOS		<b>Mooring Depth:</b> 4471 m	
<b>Mooring Operation:</b> Deployment		<b>Mooring ID#:</b> DM194	
<b>Deployed Location:</b> 01-59.75S/164-58.99E		<b>Deployed Date:</b> 7/13/16	
<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> Recovery		<b>Mooring ID#:</b> DM102	
<b>Deployed Location:</b> 05-00.83S/165-10.50S		<b>Deployed Date:</b> 10/26/14	
<b>Recovered Location:</b> 05-00.75S/165-07.20E		<b>Recovered Date:</b> 7/14/16	
<b>Sensors/Equipment Lost at Sea:</b> None			
<b>Sensors Damaged/Fouled:</b> Longline throughout the mooring			
<b>Fishing/Vandalism:</b> Longline throughout the mooring			
<b>General Comments:</b> Shackle holding acoustic release missing cotter pin and nut.			
<b>Site Sensor Failures</b>	<b>Date Data Flagged</b>	<b>Why Data Flagged</b>	<b>Field Service Observations</b>
WDIR	5/16/16	Off	
RH	2/12/15	Saturated	

<b>Buoy Site:</b> 5S 165E		<b>Mooring Depth:</b> 2487 m	
<b>Mooring Operation:</b> Deployment		<b>Mooring ID#:</b> DM195	
<b>Deployed Location:</b> 05-00.74S/165-10.26E		<b>Deployed Date:</b> 7/14/16	
<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> DART 52406			
<b>Mooring Operation:</b> Recovery		<b>Mooring ID#:</b> 52406	
<b>Deployed Location:</b> 05-17.58S/165-00.12E		<b>Deployed Date:</b> 10/26/14	
<b>Recovered Location:</b> 05-17.50S/165-00.53W		<b>Recovered Date:</b> 7/14/16	
<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>Buoy Site:</b> 52406		<b>Mooring Depth:</b> 1826 m	
<b>Mooring Operation:</b> Deployment		<b>Mooring ID#:</b> 52406	

<b>Deployed Location:</b> 05-00.74S/165-10.26E	<b>Deployed Date:</b> 7/14/16
<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> 8S 165E/ATLAS/CO2			
<b>Mooring Operation:</b> Recovery		<b>Mooring ID#:</b> QM021	
<b>Deployed Location:</b> 08-01.30S/164-49.68E		<b>Deployed Date:</b> 8/19/13	
<b>Recovered Location:</b> 08-02.16S/164-46.38E		<b>Recovered Date:</b> 7/15/16	
<b>Sensors/Equipment Lost at Sea:</b> TP500 lost at sea.			
<b>Sensors Damaged/Fouled:</b> Anemometer missing propeller,			
<b>Fishing/Vandalism:</b> Fishing float on buoy, top section severed, longline throuout mooring.			
<b>General Comments:</b> None.			
Site Sensor Failures	Date Data Flagged	Why Data Flagged	Field Service Observations
Rain	6/24/14	Data flagged	
50m Salinity	9/24/14	Data failed	
1m Salinity	12/21/14	Data failed	
Wind	3/9/15	Data failed	Missing propeller
Buoy	9/12/15	No xmits	
TP500	9/12/15	No data	Lost at sea

<b>Buoy Site:</b> 8S 165E	<b>Mooring Depth:</b> 3901 m
<b>Mooring Operation:</b> Deployment	<b>Mooring ID#:</b> DM196
<b>Deployed Location:</b> 08-01.51S/164-49.39E	<b>Deployed Date:</b> 7/16/16
<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> CO2 system #111	

<b>Buoy Site:</b> 8S 180			
<b>Mooring Operation:</b> Recovery		<b>Mooring ID#:</b> DM141	
<b>Deployed Location:</b> 07-59.20S/179-55.31E		<b>Deployed Date:</b> 7/24/15	
<b>Recovered Location:</b> 07-59.33S/179-55.80E		<b>Recovered Date:</b> 7/19/16	
<b>Sensors/Equipment Lost at Sea:</b> None			
<b>Sensors Damaged/Fouled:</b> None			
<b>Fishing/Vandalism:</b> None			
<b>General Comments:</b> None			
Site Sensor Failures	Date Data Flagged	Why Data Flagged	Field Service

			<b>Observations</b>
AT/RH	7/30/15	Data low	
SSC/SST	8/10/15	Erratic	
Buoy	6/28/16	Last xmit, Power	

<b>Buoy Site:</b> 8S 180	<b>Mooring Depth:</b> 5500 m
<b>Mooring Operation:</b> Deployment	<b>Mooring ID#:</b> DM197
<b>Deployed Location:</b> 07-59.05S/179-55.98E	<b>Deployed Date:</b> 7/19/16
<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> 5S 180			
<b>Mooring Operation:</b> Recovery		<b>Mooring ID#:</b> DM142	
<b>Deployed Location:</b> 04-57.76S/179-53.88W		<b>Deployed Date:</b> 7/26/15	
<b>Recovered Location:</b> 04-56.0S/179-52.38W		<b>Recovered Date:</b> 7/20/16	
<b>Sensors/Equipment Lost at Sea:</b> None			
<b>Sensors Damaged/Fouled:</b> SSC fouled, T50 broken ferrite core.			
<b>Fishing/Vandalism:</b> Topsection severed, plastic mesh in bridle, batter box broken off.			
<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>
None			

<b>Buoy Site:</b> 5S 180	<b>Mooring Depth:</b> 5661 m
<b>Mooring Operation:</b> Deployment	<b>Mooring ID#:</b> DM198
<b>Deployed Location:</b> 04-57.93S/179-54.16W	<b>Deployed Date:</b> 7/21/16
<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> ATRH 35547 failed on deployment, replaced with boat ride. New sensor SN: 39569.	

<b>Buoy Site:</b> 2S 180	
<b>Mooring Operation:</b> Recovery	<b>Mooring ID#:</b> DM143
<b>Deployed Location:</b> 01-59.40S/179-51.60W	<b>Deployed Date:</b> 7/27/15
<b>Recovered Location:</b> 02-00.0S/179-49.91W	<b>Recovered Date:</b> 7/22/16
<b>Sensors/Equipment Lost at Sea:</b> None	



<b>Sensors Damaged/Fouled:</b> None			
<b>Fishing/Vandalism:</b> Longline gear through mooring.			
<b>General Comments:</b> Sensor T25 and T50 were deployed in wrong order.			
<b>Site Sensor Failures</b>	<b>Date Data Flagged</b>	<b>Why Data Flagged</b>	<b>Field Service Observations</b>
TP300	2/7/16	Data missing	Long line

<b>Buoy Site:</b> 2S 180	<b>Mooring Depth:</b> 5339 m
<b>Mooring Operation:</b> Deployment	<b>Mooring ID#:</b> DM199
<b>Deployed Location:</b> 01-59.86S/179-51.422W	<b>Deployed Date:</b> 7/23/16
<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			
<b>Mooring Operation:</b> Recovery		<b>Mooring ID#:</b> DM147	
<b>Deployed Location:</b> 00-01.90N/179-55.20W		<b>Deployed Date:</b> 8/20/15	
<b>Recovered Location:</b> 00-00.60N/179-56.10W		<b>Recovered Date:</b> 7/23/16	
<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 Data Flagged</b>	<b>Why data failed</b>	<b>Field Service Observations</b>

<b>Buoy Site:</b> 0 180	<b>Mooring Depth:</b> 5391 m
<b>Mooring Operation:</b> Deployment	<b>Mooring ID#:</b> DM200
<b>Deployed Location:</b> 00-01.88N/179-55.44W	<b>Deployed Date:</b> 7/24/16
<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> 2N 180	
<b>Mooring Operation:</b> Recovery	<b>Mooring ID#:</b> DM144
<b>Deployed Location:</b> 02-00.50N/179-48.0W	<b>Deployed Date:</b> 7/29/15

<b>Recovered Location:</b> 02-01.43N/179-47.60W		<b>Recovered Date:</b> 7/24/16	
<b>Sensors/Equipment Lost at Sea:</b> Anemometer 39166			
<b>Sensors Damaged/Fouled:</b> None			
<b>Fishing/Vandalism:</b> Topsection severed, anemometer and stanchion broke off, blue paint scrape on buoy hull.			
<b>General Comments:</b> None			
<b>Site Sensor Failures</b>	<b>Date Data Flagged</b>	<b>Why data failed</b>	<b>Field Service Observations</b>
P300	9/12/15	Data too high	
Wind	10/1/15	Data failed	Stanchion broke

<b>Buoy Site:</b> 2N 180		<b>Mooring Depth:</b> 5473 m	
<b>Mooring Operation:</b> Deployment		<b>Mooring ID#:</b> DM201	
<b>Deployed Location:</b> 02-00.38N/179-47.39W		<b>Deployed Date:</b> 7/25/16	
<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> 5N 180			
<b>Mooring Operation:</b> Recovery		<b>Mooring ID#:</b> DM145	
<b>Deployed Location:</b> 04-59.59N/179-53.46W		<b>Deployed Date:</b> 7/30/15	
<b>Recovered Location:</b> 05-00.85N/179-53.80W		<b>Recovered Date:</b> 7/25/16	
<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 Data Flagged</b>	<b>Why Data Flagged</b>	<b>Field Service Observations</b>
None			

<b>Buoy Site:</b> 5N 180		<b>Mooring Depth:</b> 5671 m	
<b>Mooring Operation:</b> Deployment		<b>Mooring ID#:</b> DM202	
<b>Deployed Location:</b> 05-00.16N/179-53.61W		<b>Deployed Date:</b> 7/26/16	
<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> 8N 180			
<b>Mooring Operation:</b> Recovery		<b>Mooring ID#:</b> DM146	
<b>Deployed Location:</b> 08-01.10N/179-53.46W		<b>Deployed Date:</b> 7/31/15	
<b>Recovered Location:</b> 08-00.91N/179-52.61		<b>Recovered Date:</b> 7/26/16	
<b>Sensors/Equipment Lost at Sea:</b> None			
<b>Sensors Damaged/Fouled:</b> None			
<b>Fishing/Vandalism:</b> None			
<b>General Comments:</b> Top section severed, larg knot in Nilspin at 500 m sensor.			
<b>Site Sensor Failures</b>	<b>Date Data Flagged</b>	<b>Why Data Flagged</b>	<b>Field Service Observations</b>
WDIR	12/1/15	Erratic	
ATMP	10/27/15	Data High	

<b>Buoy Site:</b> 8N 180		<b>Mooring Depth:</b> 5960 m	
<b>Mooring Operation:</b> Deployment		<b>Mooring ID#:</b> DM203	
<b>Deployed Location:</b> 05-00.16N/179-53.61W		<b>Deployed Date:</b> 7/27/16	
<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> Drifting Wx buoy 51001			
<b>Mooring Operation:</b> Recovery		<b>Mooring ID#:</b> 2.3D06	
<b>Deployed Location:</b> 24-23.4N/162-07.6W		<b>Deployed Date:</b> 8/23/15	
<b>Recovered Location:</b> 21-53.34N/174-40.87W		<b>Recovered Date:</b> 7/30/16	
<b>Sensors/Equipment Lost at Sea:</b> None			
<b>Sensors Damaged/Fouled:</b> None			
<b>Fishing/Vandalism:</b> None			
<b>General Comments:</b> Nylon parted approximately 10 m below the chain.			

<b>Buoy Site:</b> Drifting Wx buoy 51002			
<b>Mooring Operation:</b> Recovery		<b>Mooring ID#:</b> 3D90	
<b>Deployed Location:</b> 17-03.33N/157-48.15W		<b>Deployed Date:</b> 2/4/15	
<b>Recovered Location:</b> 17-34.46N/167-29.20W		<b>Recovered Date:</b> 8/1/16	
<b>Sensors/Equipment Lost at Sea:</b> None			
<b>Sensors Damaged/Fouled:</b> None			
<b>Fishing/Vandalism:</b> None			
<b>General Comments:</b> Nylon parted in eye-splice just below the fish-bite.			

## 2.2 *CTD Casts Completed*

A Sea-Bird 911plus CTD with dual temperature and conductivity sensors was provided by the ship. Temperature and conductivity sensors are calibrated yearly at Sea-Bird and sent in for diagnostics as necessary.

The following outlines the CTD casts completed during the cruise:

CTDs			
Coordinates	Date	Cast #	Comments
8N 165E	7/7/16	RR1601-01	
5N 165E	7/9/16	RR1601-02	
2N 165E	7/10/16	RR1601-03	
1N 165E	7/10/16	RR1601-04	
0N 165E	7/11/16	RR1601-05	
2S 165E	7/13/16	RR1601-06	
3S 165E	7/13/16	RR1601-07	
5S 165E	7/14/16	RR1601-08	
8S 165E	7/16/16	RR1601-09	
8S 180	7/20/16	RR1601-10	
5S 180	7/21/16	RR1601-11	
4S 180	7/22/16	RR1601-12	
2S 180	7/23/16	RR1601-13	
0 180	7/24/16	RR1601-14	
2N 180	7/25/16	RR1601-15	
5N 180	7/26/16	RR1601-16	
8N 180	7/27/16	RR1601-17	

## 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. All Argo Float deployments were completed as scheduled.

Questions concerning ARGO Floats should be directed to:

Gregory Johnson, NOAA/PMEL  
Tel: (206) 526-6806

or

Elizabeth Steffen, NOAA/PMEL  
Tel: (206) 526-6747

E-mail: [pmel\\_floats@noaa.gov](mailto:pmel_floats@noaa.gov)

E-mail: [pmel\\_floats@noaa.gov](mailto:pmel_floats@noaa.gov)

The following outlines the Argo floats deployed during the cruise:

Argo Floats			
Coordinates	Date	SN#	Comments
08-25.14N/163-32.13E	7/7/2016	F0616	
08-02.2N/165-08.4E	7/8/2016	F0620	
05-02.2N/164-52.2E	7/9/2016	F0617	
02-00.11N/165-08.52E	7/10/2016	F0616	
1-59.92S/179-51.59W	7/23/2016	F0619	
00-01.67N/179-55.54W	7/24/2016	F0621	
02-01.6N/179-47.9W	7/25/2016	F0615	
19-59.77N/175-13.7W	7/30/2016	F0608	

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

Sixteen (16) 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:

AOML Drifters				
Coordinates		Date	SN#	Comments
05-02.0N	164-52.2E	7/9/2016	63344710	
02-00.11N	165-08.52E	7/10/2016	63345260	
02-00.11N	165-08.52E	7/10/2016	63345380	
00-00.37N	165-13.48E	7/12/2016	63345270	
00-00.37N	165-13.48E	7/12/2016	63344690	
01-59.72S	164-58.62E	7/13/2016	63345440	
01-59.72S	164-58.62E	7/13/2016	63344720	
05-01.17S	165-09.95E	7/14/2016	63344970	
04-58.872S	179-53.76W	7/21/2016	63345630	
1-59.921S	179-51.599W	7/23/2016	63345470	

1-59.921S	179-51.599W	7/23/2016	63345490	
00-01.67N	179-55.54W	7/24/2016	63345170	
00-01.67N	179-55.54W	7/24/2016	63344760	
02-01.6N	179-47.9W	7/25/2016	63344730	
02-01.6N	179-47.9W	7/25/2016	63345650	
05-00.548N	179-53.624W	7/26/2016	63344700	