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**HYDROGRAPHIC MEASUREMENTS COLLECTED ABOARD THE UNOLS  
SHIP R/V ATLANTIC EXPLORER, 15 MARCH - 1 APRIL 2014: WESTERN  
BOUNDARY TIME SERIES CRUISE AE1404 (AB1403)**

James A. Hooper V  
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Atlantic Oceanographic and Meteorological Laboratory  
Miami, Florida  
September 2014

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NATIONAL OCEANIC AND  
ATMOSPHERIC ADMINISTRATION

Office of Oceanic and  
Atmospheric Research

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## *Contents*

Table of Contents	v
List of Figures	viii
List of Tables	ix
Abstract	x
<b>1 Introduction</b>	<b>1</b>
<b>2 Cruise Narrative</b>	<b>6</b>
<b>3 Inverted Echo-Sounder Operations</b>	<b>8</b>
<b>4 Mooring Operations</b>	<b>9</b>
<b>5 Surface Drifters</b>	<b>10</b>
<b>6 Standards and Pre-Cruise Calibrations</b>	<b>11</b>
6.1 Conductivity . . . . .	13
6.2 Temperature . . . . .	14
6.3 Pressure . . . . .	14
6.4 Dissolved Oxygen . . . . .	15
<b>7 Data Acquisition</b>	<b>19</b>
7.1 System Problems . . . . .	19
7.2 Data Acquisition . . . . .	20
7.3 Shipboard CTD Data Processing . . . . .	25
7.4 CTD Calibration Procedures . . . . .	27
7.4.1 Salinity Analysis . . . . .	27
7.4.2 Oxygen Analysis . . . . .	32
<b>8 Post-Cruise Calibrations</b>	<b>35</b>
8.1 CTD Data Processing . . . . .	36
8.2 CTD Pressure . . . . .	36
8.3 CTD Temperature . . . . .	39
8.4 Conductivity . . . . .	42
8.5 Dissolved Oxygen . . . . .	54
<b>9 Final CTD Data Presentation</b>	<b>64</b>
<b>10 Acknowledgements</b>	<b>77</b>
<b>11 References</b>	<b>78</b>
<b>A Hydrographic - CTD Data</b>	<b>79</b>



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<b>B WOCE Summary File</b>	<b>162</b>
<b>C WOCE Bottle Summary File</b>	<b>165</b>

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# List of Figures

- 1 Abaco CTD station locations. . . . . 5
- 2 Bottle locations for 26.5°N Deep Western Boundary Current section east of Abaco Island. . . . . 22
- 3 Bottle locations for along the Northwest Providence Channel section. . . . . 23
- 4 Bottle locations for 27°N section in the Florida Straits. . . . . 24
- 5 Temperature logged of the Autosal room during the cruise. . . . . 28
- 6 Standard vial calibrations throughout the cruise. . . . . 29
- 7 Salinity residuals of the duplicate samples. . . . . 30
- 8 T-O plot of the calibrated sensor (blue) using the original bad oxygen samples (cyan) compared to the historical data (grey). . . . . 34
- 9 Pressure differences vs. station number. Top panel are the pressures measured on deck before the cast (blue), at the end of the upcast (red) and their respective difference (green) for s/n 1165 and on deck before the cast (cyan), at the end of the upcast (magenta) and their respective difference (black) for s/n 0360. Bottom panel are the sea surface pressure values measured at the start of the downcast (blue), at the end of the upcast (red) and their respective difference (green) for s/n 1165 and at the start of the downcast (cyan), at the end of the upcast (magenta) and their respective difference (black) for s/n 0360. 37
- 10 Temperature differences (after corrections) between sensors by station number (top) and pressure (bottom). The green represents the surface data down to 1000 dbar. The blue represents data below 1000 dbar. The red solid line represents the median with the red dashed representing the standard deviation (same for top and bottom). . . . . 40
- 11 Pressure dependent correction for temperature differences of the downcast profile (blue) with slope fit (black) and the upcast with slope fit (red). . . . . 41
- 12 Conductivity (S/m) differences between sensors by station (top) and pressure (bottom). The red solid line represents the median with the red dashed representing the standard deviation. . . . . 44
- 13 Pressure dependent correction for conductivity differences for stations 1-11. The downcast profile (blue) with slope fit (black) and the upcast with slope fit (red) represent stations 1-8, while the downcast profile (yellow) with slope fit (green) represent stations 9-11. . . . . 45
- 14 Pressure dependent correction for conductivity differences (stations 12-41) of the downcast profile (blue) with slope fit (black) and the upcast with slope fit (red). . . . . 46
- 15 Bottle and uncalibrated primary CTD salinity differences plotted against pressure. The green crosses represent all data points and the blue are the data points below 1000 dbar. The median was calculated using only the data below 1000 dbar. . . . . 47
- 16 Bottle and calibrated primary CTD salinity differences plotted vs. station. . . . . 48
- 17 Bottle and calibrated primary CTD salinity differences plotted vs. pressure. . . . . 49
- 18 Bottle and calibrated primary CTD salinity differences plotted vs. station below 1000 dbar. . . . . 50

19	Bottle and calibrated primary CTD salinity differences plotted vs. pressure below 1000 dbar. . . . .	51
20	Potential Temperature - Salinity diagram for all stations. The solid black lines are the data collected during this cruise; the solid gray lines are data from the historical database. . . . .	52
21	Potential Temperature - Salinity diagram for all stations. The solid black lines are the data collected during this cruise; the solid gray lines are data from the historical database. . . . .	53
22	Dissolved oxygen differences between sensors by station (top) and by pressure (bottom). Sensor changes at station 15 and 24. The red solid line represents the median with the red dashed representing the standard deviation. . . . .	56
23	Bottle and uncalibrated primary CTD oxygen differences plotted against station number. The green crosses represent all data points and the blue are the data points below 1000 dbar. The median was calculated using only the data below 1000 dbar. . . . .	57
24	Bottle and calibrated primary CTD oxygen differences plotted vs. station. . . . .	58
25	Bottle and calibrated primary CTD oxygen differences plotted vs. pressure. . . . .	59
26	Bottle and calibrated primary CTD oxygen differences plotted vs. station below 1000 dbar. . . . .	60
27	Bottle and calibrated primary CTD oxygen differences plotted vs. pressure below 1000 dbar. . . . .	61
28	Potential Temperature - Oxygen diagram for all stations. The solid black lines are the data collected during this cruise; the solid gray lines are data from the historical database. . . . .	62
29	Potential Temperature - Oxygen diagram for all stations. The solid black lines are the data collected during this cruise; the solid gray lines are data from the historical database. . . . .	63
30	Potential Temperature (°C) section for the Abaco Section. Dashed vertical lines are the CTD station locations. . . . .	65
31	Salinity (PSS 78) section for the Abaco section. Dashed vertical lines are the CTD station locations. . . . .	66
32	Dissolved Oxygen ( <i>umol/kg</i> ) section for the Abaco Section. Dashed vertical lines are the CTD station locations. . . . .	67
33	Neutral density (kg/m <sup>3</sup> ) section for the Abaco Section. Dashed vertical lines are the CTD station locations. . . . .	68
34	Potential Temperature (°C) section for the Florida Current North section. Dashed vertical lines are the CTD station locations. . . . .	69
35	Salinity (PSS 78) section for the Florida Current North section. Dashed vertical lines are the CTD station locations. . . . .	70
36	Dissolved Oxygen ( <i>umol/kg</i> ) section for the Florida Current North section. Dashed vertical lines are the CTD station locations. . . . .	71
37	Neutral density (kg/m <sup>3</sup> ) section for the Florida Current North section. Dashed vertical lines are the CTD station locations. . . . .	72
38	Potential Temperature (°C) section for the Northwest Providence Channel section. Dashed vertical lines are the CTD station locations. . . . .	73

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39	Salinity (PSS 78) section for the Northwest Providence Channel section. Dashed vertical lines are the CTD station locations. . . . .	74
40	Dissolved Oxygen ( <i>umol/kg</i> ) section for the Northwest Providence Channel section. Dashed vertical lines are the CTD station locations. . . . .	75
41	Neutral density (kg/m <sup>3</sup> ) section for the Northwest Providence Channel section. Dashed vertical lines are the CTD station locations. . . . .	76

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## *List of Tables*

1	Cruise participants of R/V Atlantic Explorer Cruise AB1403, March 15–April 1, 2014. . . . .	3
2	Abaco Cruise – CTD Cast Summary . . . . .	4
3	Inverted echo-sounder locations and operation. . . . .	8
4	Summary of mooring recovery operations. . . . .	9
5	Summary of mooring deployment operations. . . . .	9
6	Summary of drifter deployments. . . . .	10
7	Equipment used during AB1403 . . . . .	12
8	Pre-Cruise Calibration coefficients for the conductivity sensors. . . . .	13
9	Pre-Cruise Calibration coefficients for the temperature sensors. . . . .	14
10	Pre-Cruise Calibration coefficients for the pressure sensor. . . . .	15
11	Pre-Cruise Calibration coefficients for the dissolved oxygen sensors. . . . .	16
12	Nominal values for the batches of IAPSO standard seawater. . . . .	28
13	Duplicate salinity samples collected during the ABACO cruise. . . . .	31
14	Post-Calibration coefficients for the conductivity sensors. . . . .	35
15	Post-Calibration coefficients for the temperature sensors. . . . .	35
16	Near surface Pressure values and scan number used to remove surface soak and on-deck values. . . . .	38
17	Abaco Cruise – WOCE Summary File . . . . .	163
18	Abaco Cruise – WOCE Bottle Summary File . . . . .	166

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## Abstract

This report summarizes the March 15 - April 1, 2014 cruise on the UNOLS ship R/V Atlantic Explorer involving full-water-column CTD and lowered ADCP profiles, along with shipboard ADCP profiles, conducted within the Florida Straits and east of Abaco Island, Bahamas. At each station, a package consisting of a Seabird Electronics Model 9/11+ CTD O2 system, an RDI 150 kHz Workhorse Lowered Acoustic Doppler Current Profiler, a RDI 300 kHz Workhorse Lowered Acoustic Doppler Current Profiler, and 24 10-liter Niskin bottles, was to be lowered to the bottom. This report includes a description of the calibrations procedures and profiles of pressure, salinity (conductivity), temperature, and dissolved oxygen concentration. Water samples were also collected at various depths and analyzed for salinity and oxygen concentration to aid with CTD calibration. A total of 41 CTD-O2/LADCP stations were occupied. PIES/CPIES data were downloaded from 6 sites. There was a successful recovery and deployment of a PIES at the A2 site. Mooring operations include recovery and redeployment of three tall moorings with a mixture of microcats and current meters. Two two bottom landers instrumented were recovered and one was deployed equipped with bottom pressure recorders. As part of NOAA contribution to the Global Surface Drifter Program, 10 surface velocity drifters equipped with sea-surface temperature sensors were deployed.

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## 1 *Introduction*

The Abaco time series began in August 1984 when NOAA extended its Straits of Florida program to include measurements of western boundary current transports and water mass properties east of Abaco, the Bahamas. Since 1986, 43 hydrographic sections have been completed east of Abaco, most including direct velocity observations by Pegasus and/or Lowered Acoustic Doppler Current Profiler (LADCP). Transient tracer (CFC) measurements have been made on 8 of these sections. Current meter arrays were also maintained from April 1986 to April 1997. A new international program funded by the United Kingdom's Rapid Climate Change Program and the United States National Science Foundation began in March 2004 and is currently scheduled to end in 2021. Included in this program is a new deployment of current meter moorings along the Abaco section (the UK segment of the program continues with moorings across to the east edge of the Atlantic basin). Independently, the National Oceanic and Atmospheric Administration began a monitoring program in September 2004 utilizing inverted echo sounder moorings (some including bottom pressure measurements and near-bottom current meters) along the Abaco section. All of these programs are collaborating with scientific analysis and logistics including ship time.

The repeated hydrographic and tracer sampling at Abaco has established a high-resolution record of water mass properties in the Deep Western Boundary Current (DWBC) at 26°N, which for temperature and salinity can be reasonably constructed back to about 1985 (Vaughan and Molinari, 1997; Molinari et al., 1998). Events such as the intense convection period in the Labrador Sea and renewal of classical Labrador Sea Water in the 1980's are clearly reflected in the cooling and freshening of the DWBC waters off Abaco, and the arrival of a strong CFC pulse, approximately 10 years later (e.g. van Sebille et al., 2011). This program is unique in that it is not just a single time series site, but instead is a section from which transport can be directly calculated, of which very few are available in the ocean that approach a decade or more in length.

To achieve the goals of NOAA's strategic plan in terms of understanding the Atlantic Ocean's role in decadal and longer time scale climate variability, these continued time series observations at Abaco are seen as serving three main purposes:

1. Monitoring of the DWBC for watermass and transport signatures related to changes in the strengths and regions of high latitude water mass formation in the North Atlantic. Monitoring watermass properties in the DWBC at key locations is one part of an effort to track decadal changes in large-scale watermass properties.
2. Serving as a western boundary endpoint of a subtropical Meridional Overturning Circulation (MOC) heat flux monitoring system designed to measure the interior dynamic height difference across the Atlantic basin and the associated baroclinic heat transport.
3. Monitoring the intensity of the Antilles current as an index (together with the Florida Current) of inter-annual variability in the strength of the subtropical gyre. Variations in the strength of the subtropical gyre in relation to the North Atlantic Oscillation

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(NAO) has been proposed as an important mechanism in the atmosphere-ocean feedback within coupled models (e.g. Latif and Barnett, 1996).

A hydrographic survey consisting of a repeat LADCP/CTD/rosette section in the western North Atlantic was carried out in March-April 2014 (Figure 1 and Table 2). The R/V Atlantic Explorer departed Ft. Pierce, FL on 15 March 2014. A total of 41 LADCP/CTD/Rosette stations were occupied. Water samples (up to 24 for each station), LADCP, CTD data were collected on each cast to within 20 m of the bottom. Salinity and dissolved oxygen samples were analyzed from the majority of bottles sampled on the rosette. Mooring operations included recovery and redeployment of three tall moorings with a mixture of microcats and current meters, and two bottom landers instrumented with bottom pressure recorders. As part of NOAA's contribution to the Global Surface Drifter Program, ten surface velocity drifters equipped with sea-surface temperature sensors were deployed. The cruise ended in Ft. Pierce, FL on April 1, 2014.

The goals of cruise AE-1404 were to:

1. Recover 5 deep-sea moorings located off the eastern Bahamas along latitude  $26.5^{\circ}\text{N}$ , and deploy 4 new moorings along the same line.
2. Recover and redeploy one pressure-inverted echo sounder (PIES), and recover data from 6 previously deployed PIES by underwater acoustic telemetry.
3. Conduct CTD (Conductivity-Temperature-Depth) and Lowered ADCP (Acoustic Doppler Current Profiler) sections across the Florida Current at  $27^{\circ}\text{N}$ , Northwest Providence Channel, and along the  $26.5^{\circ}\text{N}$  RAPID-MOCHA western boundary line east of Abaco, Bahamas.
4. Perform several additional deep water CTD casts to calibrate moored instrumentation.



Table 1: Cruise participants of R/V Atlantic Explorer Cruise AB1403, March 15–April 1, 2014.

Name	Responsibility	Affiliation	Nationality
Bill Johns	Chief Scientist	RSMAS/ U. Miami	USA
Christopher Meinen	Co-Chief Scientist	NOAA/ AOML	USA
Andrew Stefanick	Oxygen analysis, CTD operations	NOAA/AOML	USA
Kyle Seaton	Salinity/Oxygen analysis	UM/CIMAS,	USA
Pedro Pena	Salinity/Oxygen analysis, IES operations	NOAA/AOML	USA
James Hooper	CTD processing	UM/CIMAS	USA
Adam Houk	LADCP processing	UM/RSMAS	USA
Athanasia Papapostolout	Moorings CTD watch	RSMAS/ U. Miami	Greece
Jian Zhao	Moorings LADCP watch	RSMAS/ U. Miami	China
Elizabeth Wong	Moorings CTD watch	RSMAS/ U. Miami	USA
Mark Graham	Moorings Moorings	RSMAS/ U. Miami	

Table 2: Abaco Cruise – CTD Cast Summary

Station	Date	Time (GMT)	Latitude	Longitude	Depth
1	03/16/14	16:02:10	25.953N	76.922W	4352
2	03/16/14	23:36:33	26.531N	76.879W	449
3	03/17/14	01:28:52	26.521N	76.820W	1336
4	03/17/14	05:25:33	26.515N	76.742W	3922
5	03/17/14	17:08:17	26.505N	76.649W	4593
6	03/17/14	22:03:40	26.499N	76.551W	4904
7	03/18/14	03:22:29	26.496N	76.470W	4912
8	03/18/14	08:51:23	26.498N	76.337W	4900
9	03/19/14	06:41:20	26.497N	76.222W	4884
10	03/19/14	12:01:37	26.496N	76.087W	4867
11	03/19/14	17:37:36	26.502N	75.901W	4808
12	03/19/14	22:43:58	26.499N	75.703W	4753
13	03/20/14	04:43:34	26.504N	75.498W	4749
14	03/20/14	10:15:36	26.500N	75.301W	4704
15	03/20/14	16:17:04	26.508N	75.079W	4668
16	03/20/14	21:21:48	26.501N	74.798W	4600
17	03/21/14	02:34:12	26.512N	74.518W	4550
18	03/21/14	07:52:06	26.502N	74.230W	4604
19	03/21/14	13:53:59	26.504N	73.871W	4806
20	03/21/14	19:57:01	26.496N	73.500W	5040
21	03/22/14	01:52:37	26.500N	73.133W	5125
22	03/22/14	08:05:14	26.498N	72.769W	5108
23	03/22/14	14:13:34	26.504N	72.373W	5110
24	03/23/14	00:22:51	26.505N	71.983W	5113
25	03/26/14	02:28:59	26.501N	76.095W	4871
26	03/27/14	05:36:46	26.496N	76.473W	4908
27	03/28/14	04:41:09	26.502N	76.740W	3006
28	03/30/14	02:44:48	26.065N	78.850W	284
29	03/30/14	04:00:39	26.166N	78.800W	441
30	03/30/14	05:22:53	26.254N	78.773W	503
31	03/30/14	06:44:35	26.336N	78.718W	679
32	03/30/14	08:15:39	26.437N	78.657W	740
33	03/30/14	16:13:25	26.999N	79.201W	468
34	03/30/14	17:27:13	27.004N	79.285W	602
35	03/30/14	18:46:14	27.005N	79.372W	661
36	03/30/14	20:23:15	27.007N	79.499W	748
37	03/30/14	22:00:33	27.007N	79.614W	640
38	03/30/14	23:16:17	27.008N	79.685W	519
39	03/31/14	00:35:58	27.005N	79.785W	370
40	03/31/14	01:36:55	27.005N	79.865W	252
41	03/31/14	02:31:29	27.009N	79.932W	130

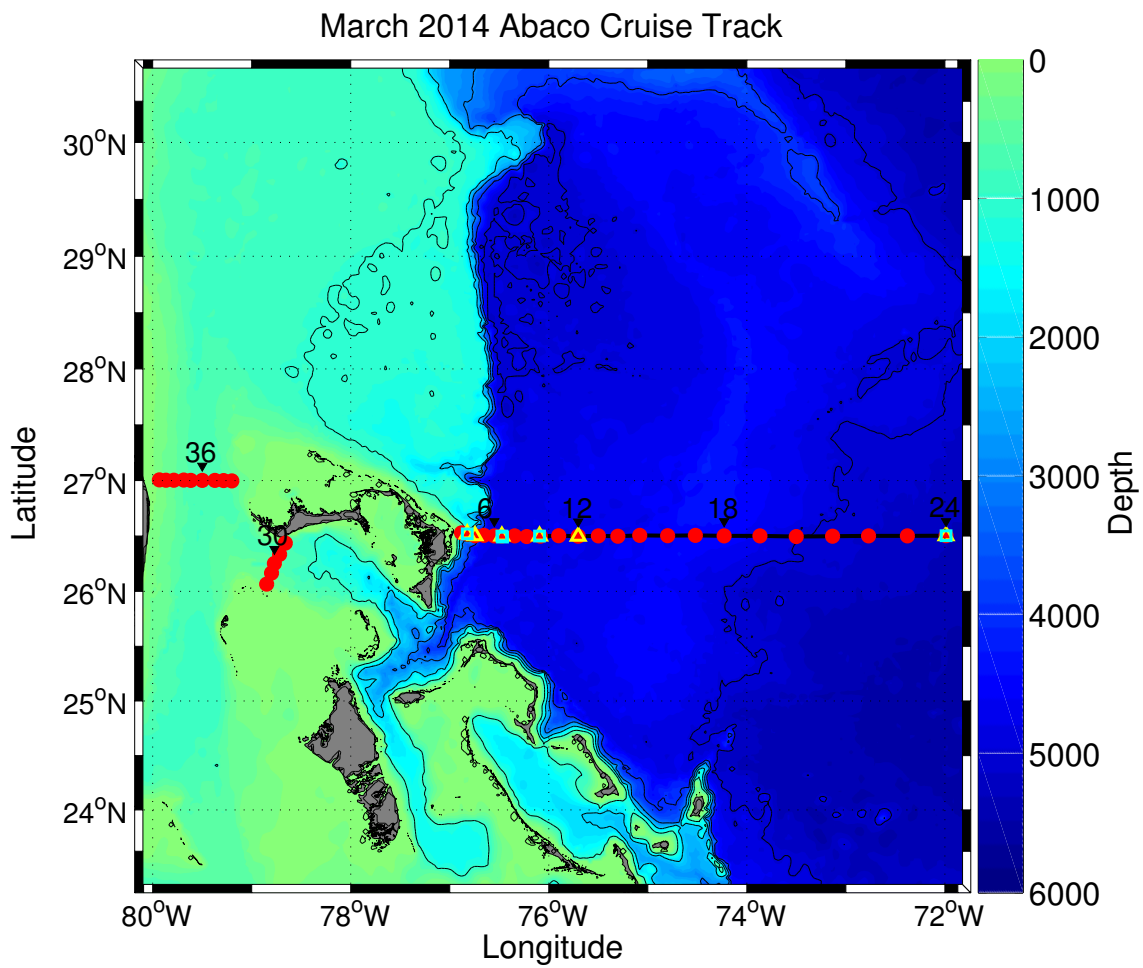


Figure 1: Abaco CTD station locations. The landmasses are shaded and the bathymetry is contoured at 1000 m intervals. The red dots are the CTD stations, the cyan squares are the mooring operations, and the yellow triangles are the IES operations.

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## 2 Cruise Narrative

*The following section is a personal communication of Bill Johns.*

The cruise departed from Fort Pierce, FL on March 15 at 08:30 local time. After crossing the Florida Current, the ship arrived off West End, Bahamas at 17:30 local and a small boat was sent in to complete Bahamian clearance check in, which was finished by 19:30. After transiting through Northwest Providence Channel, a "cal-dip" CTD station was done in 4300 m depth east of Abaco to obtain in-situ calibration data for all the moored Seabird microcat instruments to be deployed during the cruise. The CTD system obtained good temperature and salinity data on the cast but there was a problem with the dissolved oxygen channels and the altimeter data due to a system configuration error. This was immediately fixed and another short test cast (not recorded) was done before beginning the main Abaco section along 26.5°N, which showed all sensors working well. The LADCP system in use on the cruise consists of a downward looking 150 kHz ADCP and upward looking 300 kHz ADCP, both U. Miami instruments. It was discovered partway through the Abaco section that the U. Miami 150 kHz ADCP developed a problem with one of its beams and was giving poor results in the deep water casts. Thereafter it was swapped out for an identical 150 kHz ADCP from NOAA/AOML, which performed well for the remainder of the cruise. A more detailed account of CTD/LADCP package sensor issues and sensor replacements that took place during the cruise can be found in Table 7.

The Abaco CTD/LADCP section was completed from March 16-22, consisting of stations 2-24. An incident occurred during CTD004 when the CTD package got temporarily snagged on a nearby current meter mooring (mooring "WB2", maintained by the U.K. National Oceanography Centre), which we luckily got clear of after some great ship handling by the captain and bridge watch. The CTD package sustained only minor damage (some scrapes on the frame and damage to the Chinese finger tension grips), and was able to be redeployed again after a short delay. After CTD008 the ship had to transit to Marsh Harbor and send in a small boat to let off the Chief Engineer due to an illness, and pick up a replacement for him, which took place on Mar. 18, causing about a 17 hour delay including steaming time back and forth from the line. Near the end of the Abaco section, the deeper stations, 22, 23, and 24, had to be stopped before reaching the bottom due to an insufficient amount of conducting cable on the CTD winch (wire payout was limited to 5000 m).

Mooring work commenced on March 22nd with the recovery of bottom lander WBL5 at the eastern end of the Abaco line. All planned mooring operations (Tables 4 and 5) were successfully completed between March 22-29, working from east to west across the array. Underwater communications with the acoustic releases were initially difficult, with replies from the releases being either very faint or not detected at all by the deck unit, even though they could generally be heard on the ship's Knudsen echo-sounding system. After swapping out both the deck unit and transducers with backup units brought by AOML, it became apparent that the Benthos model UDB-9000 deck units, when paired with their cabled transducers, were not working well for communications with the EdgeTech acoustic releases used on the U. Miami moorings. Reasons for this are still to be determined. An

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older EG & G model 8011-A deck unit with cabled transducer was then used for mooring recovery and deployment operations, which showed more reliable communications. Later in the cruise, the Benthos deck units were interfaced with the ships 12 kHz transducer instead of their cabled transducers, and this combination worked much better and was used for all subsequent mooring operations.

All mooring recoveries went relatively smoothly except for M417 (site WB5) which had a bad tangle near the mid-depth float that took the mooring crew considerable time to unravel and recover safely. The mooring deployments also were generally smooth except for the end of M420 (site WB3), where the anchor fell over on deck as the tension was transferred to the mooring line just before anchor launch. Quick action by the mooring team restored order on the deck and resulted in a normal and safe anchor launch.

During breaks in the mooring work, a number of PIES operations were conducted, including one PIES recovery and redeployment, and acoustic data telemetry at all 6 PIES sites on the Abaco line (Table 3 provides a summary of the PIES operations). Additional CTD casts (stations 25-27) were also conducted to provide post-deployment CTD data for PIES site A2 and post-recovery cal-dip data for the microcats retrieved from the two tall moorings WB3 and WB5.

After completing all work on the Abaco line, the ship transited Northwest Providence Channel and completed the CTD/LADCP section at the western end of the Channel (stations 28-32), on March 29-30. The ship stopped into West End on the morning of March 30 to clear out from the Bahamas and then proceeded northward to the 27°N line across the Straits of Florida. The final CTD/LADCP section across the Straits of Florida (stations 33-41) was completed at 03:00 on March 31st. The ship arrived at Fort Pierce at dawn on March 31st and was docked by 09:30. The cruise was very successful and all planned operations were accomplished.

Specific summaries of the various data collected include:

1. A single Guildline Autosal, model 8400B, was used and functioned normally during the cruise. Standard water vial P-155 was used, with the exception of one case run back at the lab using P-154.
2. The Oxygen titrations were done using the AOML amperometric titration system.
3. LADCP measurements were taken using a RDI 150 kHz ADCP (RSMAS) down-looking for stations 1-12 and the RDI 150 kHz ADCP (PHOD) for stations 13-41. The CTD frame was equipped with an upward looking 300 kHz ADCP.
4. A total of 10 surface drifters were deployed throughout the cruise.

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### 3 *Inverted Echo-Sounder Operations*

In addition to the tall mooring and hydrographic operations completed on this cruise, regular maintenance of an array of pressure-equipped inverted echo sounders (PIES) was also completed (see Table 3). This maintenance consisted of acoustic download of the last 15 months of data as well as recovery and redeployment of one instrument that had reached the end of its battery life.

A summary of each of the telemetry session is provided below.

Table 3: Inverted echo-sounder locations and operation.

IES Site	Type	Latitude	Longitude	Date	Operation
A	PIES	026°31.0' N	076°49.90' W	3/29/14	Telemetry
A2	CPIES	026°30.0' N	076°44.60' W	3/27/14	Telemetry
					Recovered and Deployed
B	PIES	026°29.5' N	076°28.20' W	3/27/14	Telemetry
C	PIES	026°30.1' N	076°05.30' W	3/26/14	Telemetry
D	PIES	026°30.0' N	075°42.20' W	3/25/14	Telemetry
E	PIES	026°30.0' N	071°59.95' W	3/23/14	Telemetry

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## 4 Mooring Operations

Five subsurface moorings were successfully recovered from the locations listed in Table 4. These moorings contained a mixture of current meters, Acoustic Doppler Current Profilers (ADCPs), and temperature/salinity recorders. Sites with an "L" in their name represent bottom lander moorings which contained only precision bottom pressure sensors.

Four moorings (3 taut-wire moorings and 1 bottom landers) were deployed at the locations listed in Table 5. Acoustic surveying of the on-bottom position of all moorings was successfully completed after each mooring deployment.

Table 4: Summary of mooring recovery operations.

Mooring Site	Mooring Number	Latitude (N)	Longitude (W)	Depth	Date of Recovery
WB0	M414	26° 30.49'	76° 50.50'	1005	03/28/2014
WB3	M415	26° 29.50'	76° 29.75'	4840	03/25/2014
WB5	M416	26° 30.01'	71° 58.59'	5298	03/23/2014
WBL3	M417	26° 29.27'	76° 29.39'	4843	03/27/2014
WBL5	M418	26° 29.68'	71° 58.71'	5295	03/22/2014

Table 5: Summary of mooring deployment operations.

Mooring Site	Mooring Number	Latitude (N)	Longitude (W)	Depth	Date of Deployment
WB0	M419	26° 30.54'	76° 50.51'	1005	03/29/2014
WB3	M420	26° 29.93'	76° 29.79'	4840	03/28/2014
WBC	M422	26° 30.84'	76° 06.24'	4809	03/24/2014
WBL3	M421	26° 29.36'	76° 29.18'	4845	03/27/2014

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## 5 *Surface Drifters*

Surface drifters were deployed from the fan tail on the ship during transits. Positions of the deployments of the surface drifters are given in Table 6. The first seven were deployed east of Abaco along 26° 30' N followed by the last three along 27° N.

Table 6: Summary of drifter deployments.

Number	Date	Time (GMT)	Latitude (N)	Longitude (W)
116143	3/19/2014	14:22	26° 29.891' N	76° 04.711' W
116190	3/19/2014	14:22	26° 29.891' N	76° 04.711' W
116189	3/21/2014	00:43	26° 31.946' N	74° 30.709' W
116148	3/21/2014	00:43	26° 31.946' N	74° 30.709' W
116146	3/21/2014	00:43	26° 31.946' N	74° 30.709' W
116142	3/22/14	00:15	26° 29.92' N	73° 07.922' W
116145	3/22/14	00:15	26° 29.92' N	73° 07.922' W
116191	3/30/14	17:52	27° 00.752' N	79° 17.293' W
116144	3/30/14	17:52	27° 00.774' N	79° 17.312' W
116147	3/30/14	20:52	27° 01.376' N	79° 30.131' W



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## 6 *Standards and Pre-Cruise Calibrations*

The CTD/O<sub>2</sub> system is a real-time data acquisition system with the data from a Sea-Bird Electronics, Inc. (SBE) 9plus underwater unit transmitted via a conducting cable to a SBE 11plus deck unit (V2). The serial data from the underwater unit is sent to the deck unit in RS-232 NRZ format. The deck unit decodes the serial data and sends it to a personal computer for display and storage in a disk file using Sea-Bird Seasave software (version 7.22.5).

The SBE 911plus system transmits data from primary and auxiliary sensors in the form of binary numbers equivalent to the frequency or voltage outputs from those sensors. These are referred to as the raw data. The SBE software performs the calculations required to convert raw data to engineering units.

The SBE 911plus system is electrically and mechanically compatible with the standard, unmodified carousel water sampler, also made by Sea-Bird Electronics, Inc. A modem and carousel interface allows the 911plus system to control the operations of the carousel directly without interrupting the flow of data from the CTD.

The SBE 911plus underwater unit is configured with dual standard modular temperature (SBE 3 plus) and conductivity (SBE 4) sensors, which are mounted near the lower end cap. The conductivity cell entrance is co-planar with the tip of the temperature sensor probe. The pressure sensor is mounted inside the underwater unit main housing. A centrifugal pump module flushes water through sensor tubing at a constant rate independent of the CTD's motion to improve dynamic performance. Dual dissolved oxygen sensors (SBE 43) are added to the pumped sensor configuration following the temperature-conductivity (TC) pair. A list of sensors used during the cruise can be seen in Table 7.

Table 7: Equipment used during AB1403

Instrument	SN	Stations	Use	Pre-Cruise Calibration	Comment
Sea-Bird SBE 32 24-palce Carousel	32 - 0980	1- 41			
Water Sampler					
Sea-Bird SBE9plus CTD	1165	1-8		10/23/13	
Paroscientific Digiquartz Pressure Sensor	128030	1-8		10/23/13	
Sea-Bird SBE9plus CTD	0360	9- 41		09/07/10	
Paroscientific Digiquartz Pressure Sensor	95798	9- 41		09/07/10	
Sea-Bird SBE3plus Temperature Sensor	5898	1- 41	Primary	10/16/13	
Sea-Bird SBE3plus Temperature Sensor	5237	1- 41	Secondary	02/06/14	
Sea-Bird SBE4C Conductivity Sensor	3861	1- 41	Primary	02/06/14	
Sea-Bird SBE4C Conductivity Sensor	3854	1- 11	Secondary	02/06/14	
Sea-Bird SBE4C Conductivity Sensor	4229	12- 41	Secondary	10/01/13	
Sea-Bird SBE43 Dissolved Oxygen Sensor	2691	1- 41	Primary	10/23/13	
Sea-Bird SBE43 Dissolved Oxygen Sensor	2082	1-6,9-41	Secondary	02/08/14	
Sea-Bird SBE43 Dissolved Oxygen Sensor	1348	7-8	Secondary	03/04/14	
Sea-Bird SBE5T Pump	7268	1-41	Primary		
Sea-Bird SBE5T Pump	7267	1-7	Secondary		
Sea-Bird SBE5T Pump	3953	8-41	Secondary		
Simrad 807 Altimeter	980	1- 41	Range - 280 m		2,928 scale
RDI LADCP - 150 kHz Broad Band (UM)	18144	1-12	Downward		
RDI LADCP - 150 kHz Broad Band	18145	13-41	Downward		
RDI LADCP - 300 kHz Workhorse (UM)	6820	1- 41	Upward		

## 6.1 Conductivity

The flow-through conductivity-sensing element is a glass tube (cell) with three platinum electrodes (Seabird model SBE 4). The resistance measured between the center electrode and the end electrode pair is determined by the cell geometry and the specific conductance of the fluid within the cell, and controls the output frequency of a Wein Bridge circuit. The sensor has a frequency output of approximately 3 to 12 kHz corresponding to conductivity from 0 to 7 Siemens/meter (0 to 70 mmho/cm). The SBE 4 has a typical accuracy/stability of  $\pm 0.0003 \text{ S}\cdot\text{m}^{-1}/\text{month}$  and resolution of  $0.00004 \text{ S}\cdot\text{m}^{-1}$  at 24 scans per second.

Three conductivity sensors were used during AB1403, serial numbers (s/n) 3861, 3854, and 4229. Pre-cruise sensor calibrations were performed at Sea-Bird Electronics, Inc. in Bellevue, Washington during October 2013 and February 2014. The coefficients shown in Table 8 were entered into Seasave using the configuration file.

Conductivity calibration certificates show an equation containing the appropriate pressure-dependent correction term to account for the effect of hydrostatic loading (pressure) on the conductivity cell:

$$C \text{ (Siemens/meter)} = \frac{(g + h * f^2 + i * f^3 + j * f^4)}{[10 * (1 + c_{t_{cor}} * t + c_{p_{cor}} * p)]}$$

where  $g$ ,  $h$ ,  $i$ ,  $j$ ,  $c_{t_{cor}}$ , and  $c_{p_{cor}}$  are the calibrations coefficients shown above,  $f$  is the instrument frequency (kHz),  $t$  is the water temperature (degrees Celsius), and  $p$  is the water pressure (dbar). SEASAVE® automatically implements this equation.

Table 8: Pre-Cruise Calibration coefficients for the conductivity sensors.

s/n 3861	s/n 3854	s/n 4229
February 6, 2014	February 6, 2014	October 1, 2013
$g = -1.02405868\text{e}+01$	$g = -1.04135442\text{e}+01$	$g = -9.73943407\text{e}+00$
$h = 1.36123638\text{e}+00$	$h = 1.58208445\text{e}+00$	$h = 1.50351574\text{e}+00$
$i = -6.33050018\text{e}-04$	$i = -1.09536279\text{e}-03$	$i = -1.34147631\text{e}-03$
$j = 1.13159547\text{e}-04$	$j = 1.79416667\text{e}-04$	$j = 1.89910999\text{e}-04$
$CP_{cor} = -9.5700\text{e}-08$	$CP_{cor} = -9.5700\text{e}-08$	$CP_{cor} = -9.5700\text{e}-08$
$CT_{cor} = 3.2500\text{e}-06$	$CT_{cor} = 3.2500\text{e}-06$	$CT_{cor} = 3.2500\text{e}-06$

## 6.2 Temperature

The temperature-sensing element is a glass-coated thermistor bead, pressure protected by a stainless steel tube. The sensor output frequency ranges from 5–13 kHz corresponding to temperatures from -5 to 35°C. The output frequency is inversely proportional to the square root of the thermistor resistance, which controls the output of a patented Wien Bridge circuit. The thermistor resistance is exponentially related to temperature. The SBE 3 thermometer has a typical accuracy/stability of  $\pm 0.004^\circ\text{C}$  per year and resolution of  $0.0003^\circ\text{C}$  at 24 samples per second. The SBE 3 thermometer has a fast response time of 0.070 seconds.

Two temperature sensors (SBE 3plus) were used during AB1403, serial numbers (s/n) 5898 and 5237. Pre-cruise sensor calibrations were performed at Sea-Bird Electronics, Inc. in Bellevue, Washington during October 2013 and February 2014. The following coefficients (Table 9) were entered into SEASAVE® using the configuration file. SEASAVE® automatically implements the equation below and converts between ITS-90 and IPTS-68 temperature scales as desired. The Temperature (ITS-90) is computed from  $g$ ,  $h$ ,  $i$ ,  $j$  and  $f_0$  and  $f$  is the instrument frequency (kHz) coefficients as follows:

$$T (^{\circ}\text{C}) = \frac{1}{\left\{g + h * \left[\ln\left(\frac{f_0}{f}\right)\right] + i * \left[\ln^2\left(\frac{f_0}{f}\right)\right] + j * \left[\ln^3\left(\frac{f_0}{f}\right)\right]\right\}} - 273.15$$

Table 9: Pre-Cruise Calibration coefficients for the temperature sensors.

s/n 5898	s/n 5237
October 16, 2013	February 6, 2014
$g = 4.35065832\text{e-}03$	$g = 4.41001537\text{e-}03$
$h = 6.25971885\text{e-}04$	$h = 6.79564837\text{e-}04$
$i = 1.89617832\text{e-}05$	$i = 2.82910680\text{e-}05$
$j = 1.32016463\text{e-}06$	$j = 2.15342915\text{e-}06$
$f_0 = 1000.0$	$f_0 = 1000.0$

## 6.3 Pressure

The Paroscientific series 4000 Digiquartz high pressure transducer uses a quartz crystal resonator whose frequency of oscillation varies with pressure induced stress measuring changes in pressure as small as 0.01 parts per million with an absolute range of 0 to 10,000 psia (0 to 6885 dbar). Repeatability, hysteresis and pressure conformance are 0.002% of full-scale. The nominal pressure frequency (0 to full scale) is 34 to 38 kHz. The nominal temperature frequency is  $172 \text{ kHz} \pm 50 \text{ ppm}/^\circ\text{C}$ .

The pressure sensors utilized during AB1403 were s/n 1165 and s/n 0360. Pre-cruise sensor calibrations were performed at Sea-Bird Electronics, Inc. in Bellevue, Washington on

October 2013 and September 2010. The following coefficient (Table 10) were entered into SEASAVE® using the configuration file:

Pressure coefficients are first formulated into:

$$\begin{aligned} c &= c_1 + c_2 * U + c_3 * U^2 \\ d &= d_1 + d_2 * U \\ t_0 &= t_1 + t_2 * U + t_3 * U^2 + t_4 * U^3 + t_5 * U^4 \end{aligned}$$

where  $U$  is temperature in degrees Celsius. Pressure is computed according to:

$$P (psia) = c * \left(1 - \frac{t_0^2}{t}\right) * \left[1 - d * \left(1 - \frac{t_0^2}{t}\right)\right]$$

where  $t$  is pressure period ( $\mu s$ ). SEASAVE® automatically implements this equation.

Table 10: Pre-Cruise Calibration coefficients for the pressure sensor.

s/n 1165	s/n 0360
October 23, 2013	September 7, 2010
$c_1 = -3.955625e+04$	$c_1 = -4.698871e+04$
$c_2 = -4.423182e-01$	$c_2 = 6.928599e-01$
$c_3 = 1.291600e-02$	$c_3 = 1.264330e-02$
$d_1 = 3.518300e-02$	$d_1 = 3.832000e-02$
$d_2 = 0.000000e+00$	$d_2 = 0.000000e+00$
$t_1 = 2.987961e+01$	$t_1 = 2.996944e+01$
$t_2 = -3.979280e-04$	$t_2 = -1.348850e-04$
$t_3 = 4.178490e-06$	$t_3 = 3.953500e-06$
$t_4 = 2.677760e-09$	$t_4 = 2.102830e-09$
$t_5 = 0.000000e+00$	$t_5 = 0.000000e+00$
Slope = 1.00001000	Slope = 1.00001000
Offset = 0.0000	Offset = -1.3878
AD590M = 1.27910e-02	AD590M = 1.14100e-02
AD590B = -9.20600e+00	AD590B = -8.42813e+00

## 6.4 Dissolved Oxygen

The SBE 43 dissolved oxygen sensor uses a membrane polarographic oxygen detector (MPOD). Oxygen sensors determine the dissolved oxygen concentration by counting the number of oxygen molecules per second (flux) that diffuse through a membrane. By knowing the flux of oxygen and the geometry of the diffusion path, the concentration of oxygen can be computed. The permeability of the membrane to oxygen is a function of temperature and ambient pressure. In order to minimize the errors in the oxygen measurement due to the temperature

differences between the water and the oxygen sensor, a temperature compensation is calculated using a temperature measured near the active surface of the sensor. The interface electronics output voltages proportional to the temperature-compensated oxygen current. Initial computation of dissolved oxygen in engineering units is done in the software. The range for dissolved oxygen is 120% of surface saturation in all natural waters, fresh and salt, and the nominal accuracy is 2% of saturation.

Under extreme pressure, changes can occur in gas permeable Teflon membranes that affect their permeability characteristics. Some of these changes (plasticization and amorphous/crystallinity ratios) have long time constants and depend on the sensor's time-pressure history. These slow processes result in hysteresis in long, deep casts. The hysteresis correction algorithm operates through the entire data profile and corrects the oxygen voltage values for changes in membrane permeability as pressure varies. At each measurement, the correction to the membrane permeability is calculated based on the current pressure and how long the sensor spent at previous pressures.

Sea-Bird has implemented an optional hysteresis correction for dissolved oxygen data. The correction algorithm requires a continuous time series of data, with no temporal data gaps (although a continuous time series is necessary, a constant sampling interval is not required). Prior to processing, do not remove any data from the downcast or upcast (if to be used), other than a surface soak at the beginning of the downcast.

Oxygen sensors 2691, 2082, and 1348 were used during AB1403. The following oxygen coefficients (Table 11) were entered into SEASAVE® using the configuration file:

Table 11: Pre-Cruise Calibration coefficients for the dissolved oxygen sensors.

s/n 2691	s/n 2082	s/n 1348
October 23, 2013	February 08, 2014	March 04, 2014
Soc = 0.4390	Soc = 0.4551	Soc = 0.3542
Voffset = -0.4968	Voffset = -0.5333	Voffset = -0.5139
Tau20 = 2.43	Tau20 = 1.31	Tau20 = 1.07
A = -2.8397e-03	A = -4.3258e-03	A = -3.6375e-03
B = 1.2502e-04	B = 2.4952e-04	B = 2.0198e-05
C = -1.7165e-06	C = -4.0206e-06	C = -2.7879e-06
E <sub>nominal</sub> = 0.036	E <sub>nominal</sub> = 0.036	E <sub>nominal</sub> = 0.036

The use of these constants in linear equations of the form  $I = mV + b$  and  $T = kV + c$  yield sensor membrane current and temperature (with maximum error of about 0.5 °C) as a function of sensor output voltage.

Dissolved oxygen concentration is calculated according to:

$$O \text{ (ml/l)} = \left\{ Soc * \left( V + V_{offset} + tau(T, S) * \frac{\delta v}{\delta t} \right) + p1 * station \right\} \\ * (1.0 + A * T + B * T^2 + C * T^3) * OXSAT(T, S) * e^{E * \left( \frac{P}{K} \right)}$$

where  $Soc$ ,  $V_{offset}$ ,  $tau$ ,  $A$ ,  $B$ ,  $C$ ,  $E$  and  $p1$  are the calibration coefficients shown above and  $V$  is the instrument voltage ( $V$ ).  $T$ ,  $S$  and  $P$  are the temperature, salinity and pressure measured by the CTD.  $K$  is the temperature in the absolute scale ( $K$ ),  $\delta v/\delta t$  is the oxygen voltage time derivative,  $station$  is the station number, and  $OXSAT$  is the oxygen saturation value calculated according to (Weiss, 1970):

$$OXSAT(\theta, S) = \exp \left\{ A_1 + A_2 * \left( \frac{100}{\theta} \right) + A_3 * \ln \left( \frac{\theta}{100} \right) + A_4 * \left( \frac{\theta}{100} \right) + S * \left[ B_1 + B_2 * \left( \frac{\theta}{100} \right) + B_3 * \left( \frac{\theta}{100} \right)^2 \right] \right\}$$

where  $\theta$  is the absolute temperature (K); and

$$\begin{aligned} A_1 &= -173.4292 & B_1 &= -0.033096 \\ A_2 &= 249.6339 & B_2 &= 0.014259 \\ A_3 &= 143.3483 & B_3 &= -0.00170 \\ A_4 &= -21.8492. \end{aligned}$$

SEASAVE® automatically implements this equation.

The hysteresis correction is calculated, using the oxygen voltages, with the following algorithm:

$$\begin{aligned} D &= 1 + H_1 * (e^{\left(\frac{P(i)}{H^2}\right)} - 1) \\ C &= e^{-1 * \left(\frac{Time(i) - Time(i - 1)}{H3}\right)} \\ O_V(i) &= O_{volt}(i) + V_{offset} \\ O_{newvolts}(i) &= a * \frac{a}{D} \\ O_{finalvolts}(i) &= O_{newvolts}(i) - V_{offset} \end{aligned}$$

Where:

$i$  = indexing variable (must be a continuous time series to work; can be performed on bin averaged data), where  $i = 1:end$  (end is largest data index point plus 1).

$P(i)$  = pressure (decibars) at index point  $i$ .

$Time(i)$  = time (seconds) from start of index point  $i$ .

$O_{volt}(i)$  = SBE 43 oxygen voltage output directly from sensor, with no calibration or hysteresis corrections, at index point  $i$ .

$V_{offset}$  = correction for an electronic offset that is applied to voltage output of sensor.  $V_{offset}$  correction is always negative (see factory calibration sheet for this coefficient).  $V_{offset}$  is added to raw voltages prior to hysteresis correction. At end of hysteresis corrections,  $V_{offset}$  is removed prior to data conversion using SBE 43 calibration equation (see  $O_{finalvolts}(i)$ ).

$O_V(i)$  = dissolved oxygen voltage value with  $V_{offset}$  correction (made prior to hysteresis correction) at index point  $i$ .

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$D$  and  $C$  are temporary variables used to simplify expression in processing loop.  
 $H1$  = amplitude of hysteresis correction function. Default = -0.033, range = -0.02 to -0.05 (varies from sensor to sensor).  
 $H2$  = function constant or curvature function for hysteresis. Default = 5000.  
 $H3$  = time constant for hysteresis (seconds). Default = 1450, range = 1200 to 2000 (varies from sensor to sensor).  
 $O_{newvolts}(i)$  = hysteresis-corrected oxygen value at index point  $i$ .  
 $O_{finalvolts}(i)$  = hysteresis-corrected oxygen value at index point  $i$  with  $V_{offset}$  removed.

This step is necessary prior to computing oxygen concentration using SBE 43 calibration equation.



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## 7 *Data Acquisition*

CTD/rosette casts were performed with a package consisting of a 24-place, 10-liter rosette frame (AOML's pink frame), a 24-place water sampler (SBE32) and 24, 10-liter Bullister-style bottles. This package was deployed on all stations/casts. Underwater electronic components consisted of a Sea-Bird Electronics (SBE) 9 plus CTD with dual pumps and the following sensors: dual temperature (SBE3), dual conductivity (SBE4), dual dissolved oxygen (SBE43), and a Simrad 807 altimeter. The other underwater electronic components consisted of two RDI LADCPs. A total of 41 CTD/rosette casts were made, usually to within 20 m of the bottom (we were not able to get within 20 m of the bottom for the last three stations of the Abaco line due to the winch only having 5100 m of cable available for wire out).

The CTD's supplied a standard Sea-Bird format data stream at a data rate of 24 frames/second. The SBE9 plus CTD was connected to the SBE32 24-place pylon providing for single-conductor sea cable operations. Power to the SBE9 plus CTD, SBE32 pylon, auxiliary sensors, and altimeter was provided through the sea cable from the SBE911plus deck unit in the computer lab. The rosette system was suspended from a UNOLS-standard three-conductor 0.322" electro-mechanical sea cable.

The CTD was mounted vertically attached to the bottom center of the rosette frame. All SBE4 conductivity and SBE3 temperature sensors and their respective pumps were mounted vertically as recommended by SBE, outboard of the CTD. The CTD was outfitted with dual pumps. Primary temperature, conductivity, and dissolved oxygen were plumbed on one pump circuit and secondary temperature, conductivity, and dissolved oxygen on the other. Pump exhausts were attached to outside corners of the CTD cage and directed downward. The altimeter was mounted on the inside of a support strut adjacent to the bottom frame ring. The LADCP's were vertically mounted inside the bottle rings with one 150 kHz pointing down, the other 300 kHz transducer pointing up. The R/V Atlantic Explorer's starboard A-frame CTD winch was used with the 24-place 10-liter rosette for all station/casts.

O-rings were changed as necessary and bottle maintenance was performed each day to insure proper closure and sealing. Valves were inspected for leaks and repaired or replaced as needed.

### 7.1 *System Problems*

- The CTD acquisition computer had no serial ports. USB to serial port adapters were used instead. The ships adapters did not have drivers installed. We had adapters with the serial ports drivers available, so we used ours instead. The default Seabird coms ports were not available via the adapters. Instead, coms 13 and 14 were used for the SBE 9plus and SBE water sampler, respectively.

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- The configuration file for the cast at Station 1 was set up incorrectly for both oxygen sensors and the altimeter. No data was recorded for either of these. It was also determined that the auxiliary 1 port on the CTD, s/n 1165, was not working correctly.
  - During the upcast at station 4 the CTD package became tangled with the British W2 mooring. The package was recovered with minimal damage. The package was lowered  $\approx 600$  m to untangle it from the mooring. No water samples were used due to water intrusion.
  - Step-like profile features were seen during the cast at station 6 in the secondary oxygen profiles at depth. The secondary sensor, s/n 2082, was replaced with s/n1348. The problem persisted during stations 7 and 8. Replaced CTD, s/n 1165, with CTD, s/n 0363 along with a new cable for the secondary oxygen. This fixed the problem. It was determined after that s/n 1165 had flooding in the top cap. Secondary oxygen sensor, s/n 2082, was swapped back in place of s/n 1348. It was performing better with the primary oxygen sensor.
  - At station 12 the secondary conductivity sensor, s/n 3854, was swapped out for s/n 4229. A shift was seen in the T-S plot at depth in stations 10 and 11 for sensor s/n 3854.
  - At station 13 the UM 150 kHz ADCP was showing large error bars in the velocity profiles and replaced with AOML's 150 kHz ADCP.
  - At station 26 the CTD was re-terminated. Modulo errors were seen during several casts (Stations 13, 15, 25 and 26) and it was finally determined this was due to a bad sea-cable.

## 7.2 *Data Acquisition*

The CTD data acquisition system consisted of an SBE-11plus (V2) deck unit and a networked generic PC workstation running Windows 7 located in the aft bridge. SBE Seasave software version 7.22.5 was used for data acquisition and to close bottles on the rosette.

The console watch initiated CTD deployments after the ship stopped on station. The watch maintained a console operations log containing a description of each deployment, a record of every attempt to close a bottle and any pertinent comments.

The deck watch leader directed the winch operator to raise the package, the starboard A-frame and rosette were extended outboard, and the package quickly lowered into the water and submerged to 10-15 meters of wire out. Tag lines were necessary for both deployments

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and recoveries during this cruise. The CTD sensor pumps were configured with a 60 second startup delay. The CTD console operator waited for the CTD sensor pumps to turn on, waiting for 2-3 minutes for sensors to stabilize, then directed the winch operator to bring the package close to the surface, pause for typically 10 seconds, hitting “Mark Scan” and begin the descent. The profiling rate was no more than 30 m/min to 150 m and no more than 60 m/min deeper than 150 m depending on sea cable tension and the sea state.

The console watch monitored the progress of the deployment and quality of the CTD data through interactive graphics and operational displays. Additionally, the watch created a sample log for the deployment that would be later used to record the correspondence between rosette bottles and analytical samples taken. The altimeter channel, CTD pressure, wire-out and bathymetric depth were all monitored to determine the distance of the package from the bottom, usually allowing a safe approach to within 20 m.

On the up cast, the winch operator was directed to stop at each bottle trip depth. The CTD console operator waited 30 seconds before tripping a bottle using a “point and click” graphical trip button. The data acquisition system responded with trip confirmation messages and the corresponding CTD data in a rosette bottle trip window on the display. All tripping attempts were noted on the console log. The console watch then directed the winch operator to raise the package up to the next bottle trip location.

After the last bottle was tripped, the console watch directed the deck watch to bring the rosette on deck. Once on deck, the console watch terminated the data acquisition, turned off the deck unit, and assisted with rosette sampling.

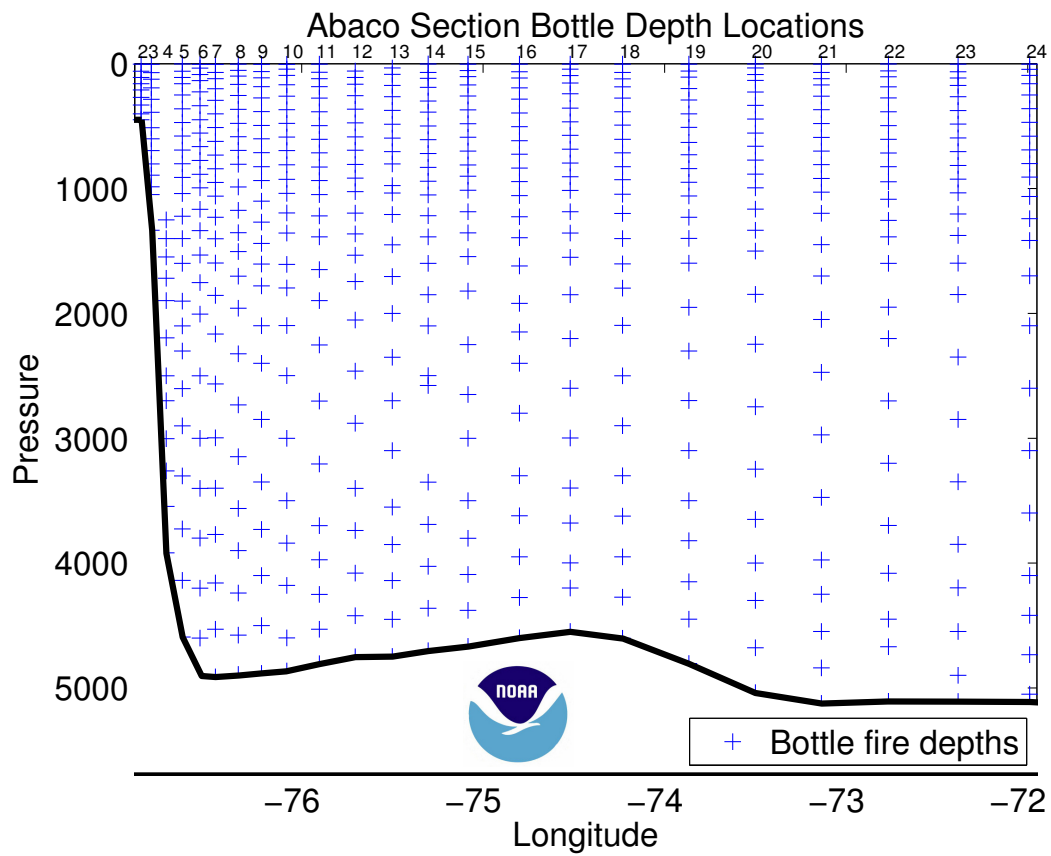


Figure 2: Bottle locations for 26.5°N Deep Western Boundary Current section east of Abaco Island.

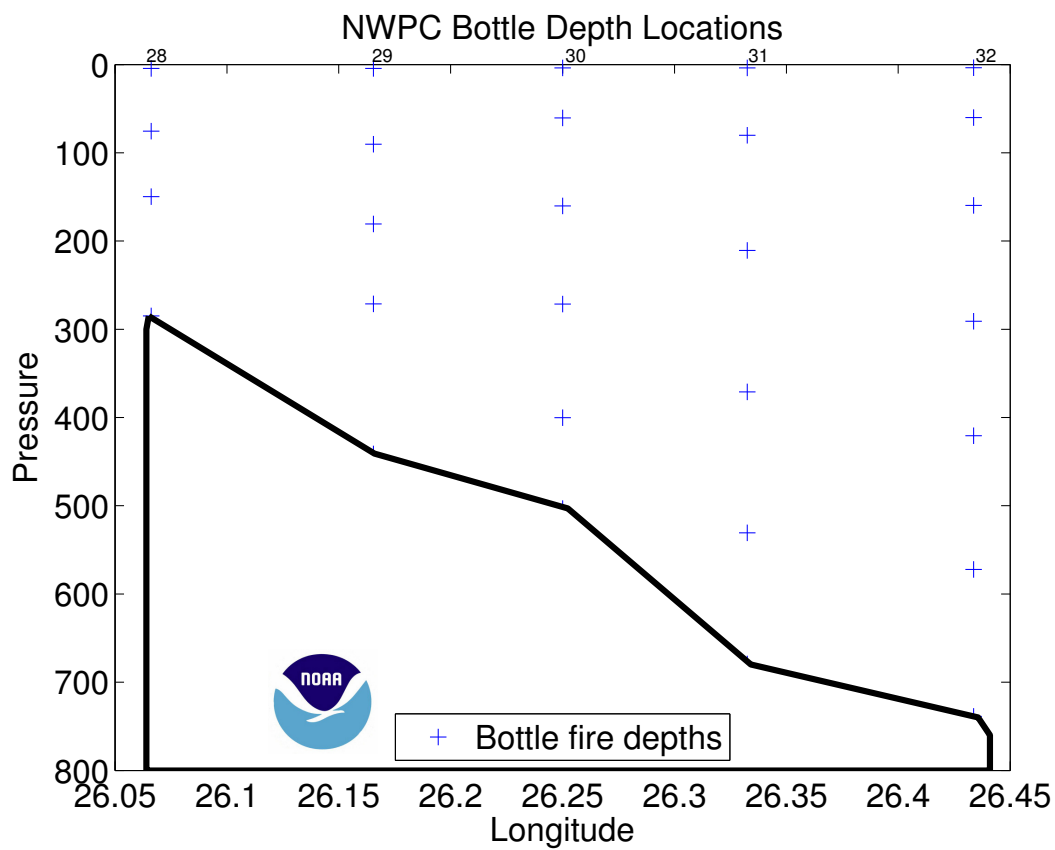


Figure 3: Bottle locations for along the Northwest Providence Channel section.

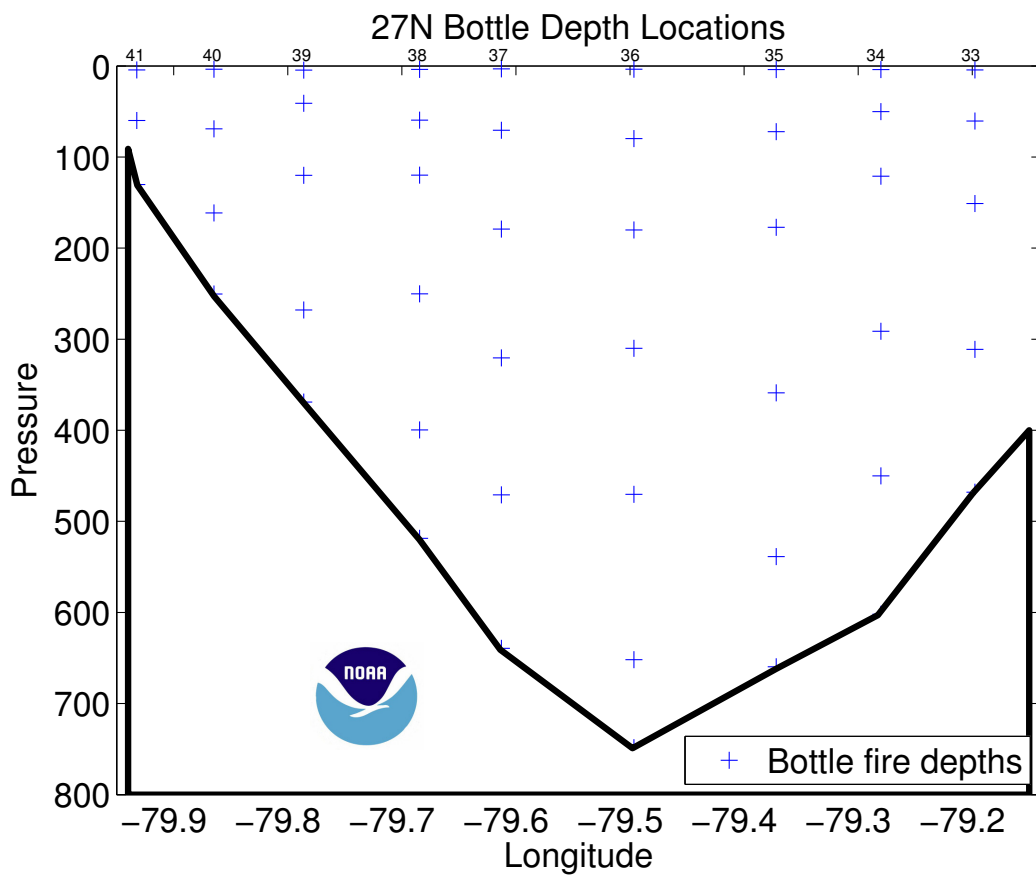


Figure 4: Bottle locations for 27°N section in the Florida Straits.

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### 7.3 Shipboard CTD Data Processing

Shipboard CTD data processing was performed automatically at the end of each deployment using SEABIRD SBE Data Processing version 7.21h and AOML Matlab processing software. The raw CTD data and bottle trips acquired by SBE Seasave on the Windows 7 workstation were copied onto the CTD-PROC workstation, and processed to a 1-dbar series and a 1-second time series. Bottle trip values were extracted and a 1-decibar (dbar) down cast pressure series created.

Raw data are acquired from the instruments and are stored unmodified. The conversion module DATCNV uses the instrument configuration and pre-cruise factory calibration coefficients to create a converted engineering unit data file that is utilized by all SBEDataProc® post processing modules. Unless otherwise noted, all calibration parameters given are factory default values recommended by Sea Bird Electronics, Inc. The following is the SBEDataProc® processing module sequence and specifications for primary calibrated data (1 dbar averages) uses the following routines in order for reduction of CTD/O<sub>2</sub> data from this cruise:

1. DATCNV converts raw data into engineering units and creates a .ROS bottle file. Both down and up casts were processed for scan, elapsed time(s), depth, pressure, t0 ITS-90 C, t1 ITS-90 C, c0 S/cm, c1 S/cm, salinity (PSU), salinity 2 (PSU), oxygen voltage V, oxygen 2 voltage V, altimeter, optical sensor, oxygen umol/kg, oxygen 2 umol/kg, oxygen mll/l, oxygen 2 ml/l, oxygen dv/dt, oxygen dv/dt 2, latitude, and longitude. MARKSCAN was used to determine the number of scans acquired on deck and while priming the system to exclude these scans from processing.
2. ALIGNCTD aligns temperature, conductivity, and oxygen measurements in time relative to pressure to ensure that derived parameters are made using measurements from the same parcel of water. Secondary conductivity and oxygen were automatically advanced by 0.073 seconds.
3. BOTTLESUM creates a summary of the bottle data. Bottle position, date, and time were output automatically. Pressure, temperature, conductivity, salinity, oxygen voltage and preliminary oxygen values were averaged over a 5 second interval.
4. WILDEDIT computes the standard deviation of 100 point bins, and then makes two passes through the data. The first pass flags points that differ from the mean by more than 2 standard deviations. A new standard deviation is computed excluding the flagged points and the second pass marks bad values greater than 20 standard deviations from the mean. For this data set, data were kept within a distance of 100 of the mean (i.e., all data).

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5. FILTER applies a low pass filter to pressure with a time constant of 0.15 seconds. In order to produce zero phase (no time shift), the filter is first run forward through the file and then run backwards through the file.
  6. CELLTM uses a recursive filter to remove conductivity cell thermal mass effects from measured conductivity. In areas with steep temperature gradients the thermal mass correction is on the order of 0.005 PSS-78. In other areas the correction is negligible. The value used for the thermal anomaly amplitude (alpha) was 0.03°C. The value used for the thermal anomaly time constant (1/beta) was 7.0°C.
  7. LOOPEDIT removes scans associated with pressure slowdowns and reversals. If the CTD velocity is less than 0.25 m/s or the pressure is not greater than the previous maximum scan, the scan is omitted.
  8. DERIVE uses 1 dbar averaged pressure, temperature, and conductivity to compute primary and secondary salinities. Oxygen voltage is used to calculate oxygen concentrations.
  9. BINAvg averages the data into 1 dbar bins. Each bin is centered on an integer pressure value, e.g., the 1 dbar bin averages scans where pressure is between 0.5 dbar and 1.5 dbar. There is no surface bin. The number of points averaged in each bin is included in the data file.
  10. STRIP removes the computed oxygen variable.
  11. TRANS converts the binary data file into ASCII format.
  12. SPLIT separates the cast into upcast and downcast values.

Package slowdowns and reversals owing to ship roll can move mixed water in tow to in front of the CTD sensors and create artificial density inversions and other artifacts. In addition to Seasoft module LOOPEDIT, a program computes values of density locally referenced between every 1 dbar of pressure to compute  $N^2$  and linearly interpolates temperature, conductivity, and oxygen voltage over those records where  $N^2$  is less than or equal to  $-1 \times 10^{-5} \text{ s}^{-2}$ . These data were retained but flagged as questionable in the final WOCE formatted files.

Final calibrations are applied to delooped data files. ITS-90 temperature, salinity, and oxygen are computed, and WOCE quality flags are created.



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CTD data were examined at the completion of each deployment for clean corrected sensor response and any calibration shifts. As bottle salinity and oxygen results became available, they were used to refine shipboard conductivity and oxygen sensor calibrations.

A total of 41 casts were processed.

## ***7.4 CTD Calibration Procedures***

Laboratory calibrations of the CTD pressure, temperature, conductivity, and oxygen sensors were all performed at SBE. The calibration dates are listed in Table 7.

Secondary temperature, conductivity and dissolved oxygen (T2, C2 and DO2) sensors served as calibration checks for the reported primary sensors. During the cruise, it was determined that the primary sensors behaved more stably during the cruise.

In-situ salinity and dissolved O<sub>2</sub> check samples collected during each cast were used to calibrate the conductivity and dissolved O<sub>2</sub> sensors.

There were several sensor combinations (not including pump replacements) used during the cruise.

### ***7.4.1 Salinity Analysis***

A single Guildline Autosol, model 8400B (s/n 71011), located in salinity analysis room, was used for all salinity measurements hooked up to a UPS. The autosol used was provided by AOML and last calibrated August 23, 2012. The salinometer readings were logged on a computer using Ocean Scientific International's logging hardware and software. The Autosol's water bath temperature was set to 24°C, which the Autosol is designed to automatically maintain. The laboratory's temperature is typically set and maintained to just below 24°C, to help further stabilize reading values and improve accuracy. The room temperature was monitored by a digital thermometer with serial output continuously logging on the salinity computer (Figure 5). The temperature was used to gauge when the Autosol room temperature was acceptable to run salts. Salinity analyses were performed after samples had equilibrated to laboratory temperature, usually at least 12 hours after collection. The salinometer was standardized for each group of samples analyzed (usually 2 casts and up to 52 samples) using two bottles of standard seawater: one at the beginning and end of each set of measurements. The salinometer output was logged to a computer file. The software prompted the analyst to flush the instrument's cell and change samples when appropriate. Prior to each run a sub-standard flush, approximately 200 ml, of the conductivity cell was conducted to flush out the DI water used in between runs. For each calibration standard, the salinometer cell was initially flushed 6 times before a set of conductivity ratio reading was taken. For each sample, the salinometer cell was initially flushed at least 3 times before

a set of conductivity ratio readings were taken.

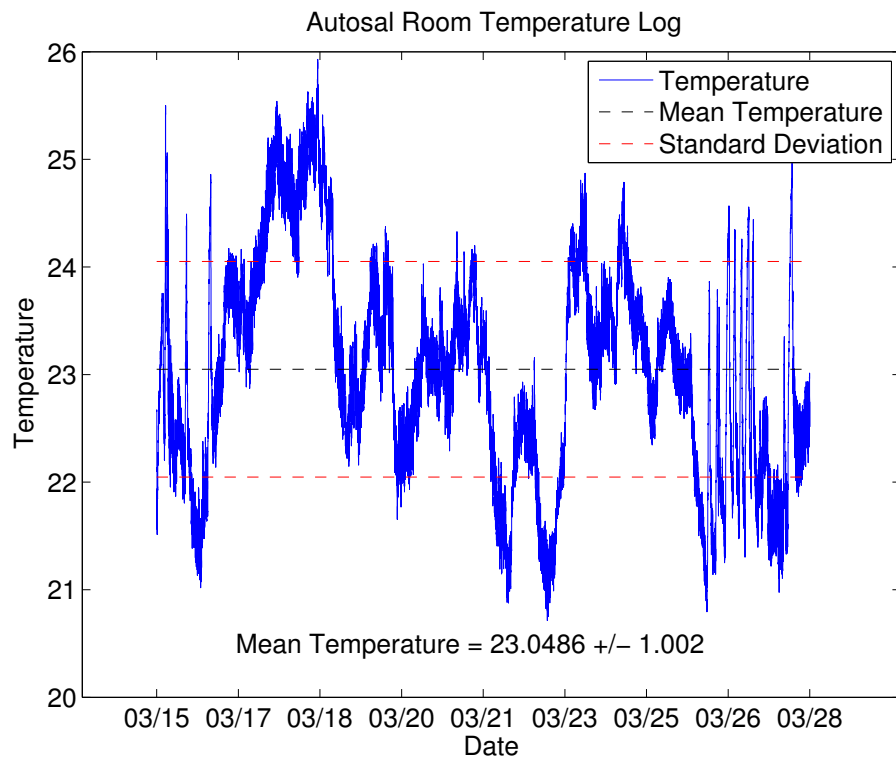


Figure 5: Temperature logged of the Autosal room during the cruise.

IAPSO Standard Seawater Batch P-155 and P-154 was used to standardize the casts (Table 12).

Table 12: Nominal values for the batches of IAPSO standard seawater.

P-155	P-154
Use By: September 2015	Use By: October 2014
K15: 0.99981	K15: 0.99990
Salinity: 34.993	Salinity: 34.996

The salinity samples were collected in 200 ml Kimax high-alumina borosilicate bottles that had been rinsed at least three times with sample water prior to filling. The bottles were sealed with custom-made plastic insert thimbles and Nalgene screw caps. This assembly provides very low container dissolution and sample evaporation. Prior to sample collection, inserts were inspected for proper fit and loose inserts replaced to insure an airtight seal.

Laboratory temperature was also monitored electronically throughout the cruise. PSS-78 salinity [UNES81] was calculated for each sample from the measured conductivity ratios. The offset between the initial standard seawater value and its reference value was applied to each sample. Then the difference (if any) between the initial and final vials of standard seawater was applied to each sample as a linear function of elapsed run time. The corrected salinity data was then incorporated into the cruise database. When duplicate measurements were deemed to have been collected and run properly, they were averaged and submitted with a quality flag of 6. On WBTS - AB1403, 621 salinity measurements were taken, including 59 duplicates, and approximately 22 vials of standard seawater (SSW) were used. Up to two duplicate samples drawn from most casts to determine total analytical precision.

The running standard calibration values are shown in Figure 6. Through the course of the 17 day cruise, the autosal standards changed by 0.00037 in conductivity ratio (about 0.07 in salinity). The precision of the salinity measurements during the cruise were estimated by using the duplicate samples. From the 59 duplicate samples (Table 13), which corresponds to 9.5% of the total samples collected during this cruise, the average residual for the duplicates was 0.0001 PSU with and standard deviation of 0.0016 PSU (Figure 6).

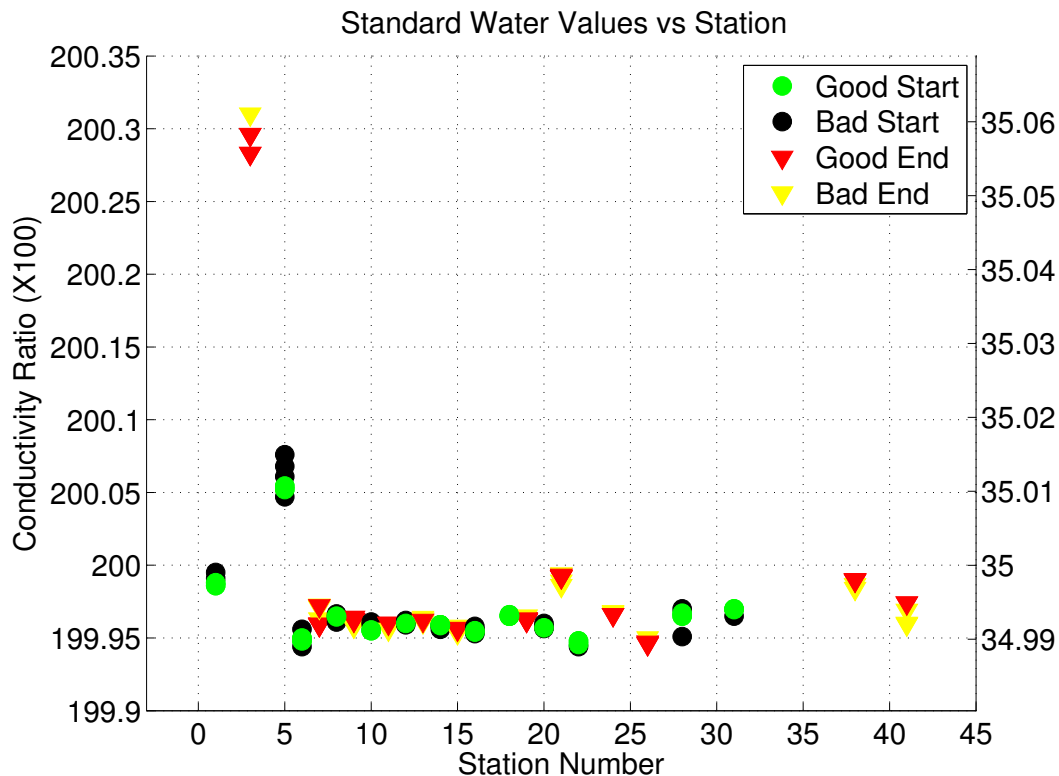


Figure 6: Standard vial calibrations throughout the cruise.

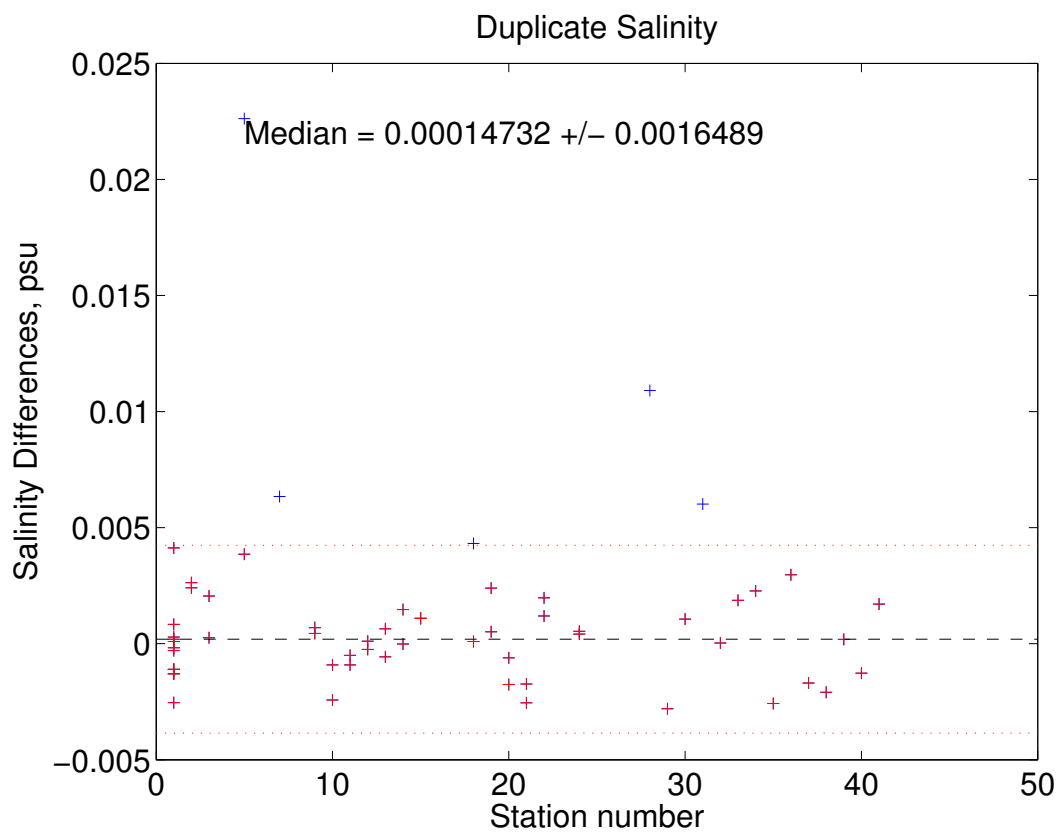


Figure 7: Salinity residuals of the duplicate samples.

Table 13: Duplicate salinity samples collected during the ABACO cruise.

Station	Niskin	Salinity1	Salinity2	Differences
1	2	34.884	34.884	-0.000
1	4	34.884	34.883	0.001
1	6	34.884	34.885	-0.000
1	8	34.883	34.882	0.001
1	10	34.882	34.881	0.001
1	12	34.894	34.891	0.003
1	13	34.903	34.902	0.000
1	15	34.961	34.960	0.000
1	17	35.052	35.052	-0.000
1	19	36.045	36.044	0.001
1	21	36.653	36.657	-0.004
1	23	36.526	36.527	-0.001
2	2	36.382	36.385	-0.002
2	8	36.470	36.473	-0.003
3	2	35.042	35.042	-0.000
3	13	36.502	36.504	-0.002
5	1	34.889	34.892	-0.004
5	2	34.895	34.917	-0.023
7	5	34.913	34.919	-0.006
9	8	34.956	34.957	-0.001
9	18	36.223	36.224	-0.000
10	5	34.903	34.901	0.002
10	19	36.517	36.517	0.001
11	9	34.969	34.968	0.001
11	23	36.582	36.581	0.001
12	10	34.995	34.995	-0.000
12	17	35.926	35.926	0.000
13	3	34.887	34.887	0.001
13	9	34.961	34.962	-0.001
14	7	34.942	34.943	-0.001
14	9	34.969	34.969	0.000
15	5	34.897	34.898	-0.001
15	16	35.628	35.629	-0.001
18	7	34.945	34.950	-0.004
18	17	36.186	36.186	-0.000
19	3	34.888	34.890	-0.002
19	14	35.166	35.166	-0.001
20	4	34.892	34.892	0.001
20	17	36.435	36.434	0.002
21	2	34.877	34.875	0.002
21	15	35.368	35.366	0.003

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22	2	34.885	34.887	-0.002
22	22	36.558	36.560	-0.001
24	2	34.877	34.877	-0.001
24	12	35.032	35.032	-0.000
28	4	36.674	36.685	-0.011
29	4	36.618	36.616	0.003
30	2	36.062	36.063	-0.001
31	10	36.469	36.475	-0.006
32	6	36.434	36.434	-0.000
33	6	36.697	36.698	-0.002
34	6	36.558	36.560	-0.002
35	6	36.284	36.282	0.003
36	6	35.375	35.378	-0.003
37	6	35.994	35.993	0.002
38	2	34.951	34.948	0.002
39	4	35.783	35.783	-0.000
40	4	36.255	36.254	0.001
41	2	35.951	35.952	-0.002

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#### 7.4.2 Oxygen Analysis

Dissolved oxygen analyses were performed with an automated titrator using amperometric end-point detection (Langdon, 2010). Sample titration, data logging, and graphical display were performed with a PC running a LabView program written by Ulises Rivero of AOML. Thiosulfate (17.5g per 500 ml) was dispensed by a 2 ml Gilmont burette driven with a stepper motor controlled by the titrator. Tests in the lab were performed to confirm that the precision and accuracy of the volume dispensed were comparable or superior to the Dosimat 665. The whole-bottle titration technique of Carpenter (1965), with modifications by Culberson et al. (1991), was used. Four replicate 10 ml iodate standards were run every 3-4 days or at the initial fill of new Thiosulfate and once again after bottle has reached half volume, whichever came first. The reagent blank determined as the difference between V1 and V2, the volumes of Thiosulfate required to titrate 1ml aliquots of the iodate standard, was determined two times during the cruise at the beginning and middle. This method was found during pre-cruise testing to produce a more reproducible blank value than the value determined as the intercept of a standard curve.

Dissolved oxygen samples were drawn from Niskin bottles into calibrated 125-150ml iodine titration flasks using silicon tubing. Bottles were rinsed three times and filled from the bottom, overflowing three volumes while taking care not to entrain any bubbles. The CTD temperatures were used to calculate  $umol/kg$  concentrations. 1ml of  $MnCl_2$  and 1ml of  $NaOH/NaI$  were added immediately after drawing the sample was concluded using a ThermoScientific REPIPET II. The flasks were then stoppered and shaken well. Deionized water (DIW) was added to the neck of each flask to create a water seal. The total number of oxygen samples collected from the rosette was 627 including the duplicate samples, two taken at

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random every cast. The samples were stored in the lab in plastic totes at room temperature for 1.5 hours before analysis. The data was incorporated into the cruise database shortly after analysis. Thiosulfate normality was calculated from the laboratory temperature for each sample run.

The dispenser used for the standard solution (SOCOREX Calibrex 520) and the burette were calibrated gravimetrically just before the cruise. Oxygen flask volumes were determined gravimetrically with degassed deionized water at AOML. The correction for buoyancy was applied.

During the initial setup for analyses the following instruments were used: Aoml Titrator #4, Burette #15, stepper motor AOML2, stirrer Hi 190M, computer desktop AOML\_ADMIN, Weaton Dispenser #3 (10 ml=9.962), and amp probe s/n: 3129022P. At the beginning of station 7 run the stirring table was switched due to the first having motor issues. At station 18 it was observed that the stepper motor controlling the burette being to freeze and loose step. It was switched out for the station 19 run to motor AOML#4, Burette #39. After getting higher than normal standard reading prior the run of station 28 the amp probe was switched to s/n: 4034104P, but the same readings were observed and the higher readings were concluded to be true.

After a comparison of the oxygen samples with the calibrated historical data it was determined that the oxygen samples were low by  $\approx 10 \text{ } \mu\text{mol/kg}$  (Figure 8). As a result this caused the sensors to calibrate low, away from the historical values, and the oxygen samples were unable to be used for final calibrations. Hence we threw out all oxygen bottle values. Please do not use. The sensors were calibrated by substituting the oxygen samples with oxygen values derived from the calibrated oxygen profiles of the cruise before, ab1302, and the cruise after, ab1502, and averaging them. To derive the oxygen values a bin search of  $\pm 0.0005 \text{ } ^\circ\text{C}$  ( $\pm 0.005 \text{ } ^\circ\text{C}$  above 1000 m) around each bottle stop temperature and an interpolation was used to get the calibrated historical oxygen value in  $\theta$ -O space. This was done for each bottle stop temperature for ab1302 and ab1502 and each oxygen value became the substitute "bottle oxygen" sample. The two oxygen files made from each cruise were then averaged together to make the final oxygen file for final calibrations, which included a total of 437 oxygen values. Only the deep stations of the abaco line were used to create the oxygen file. The shallow stations showed too large of a variability.

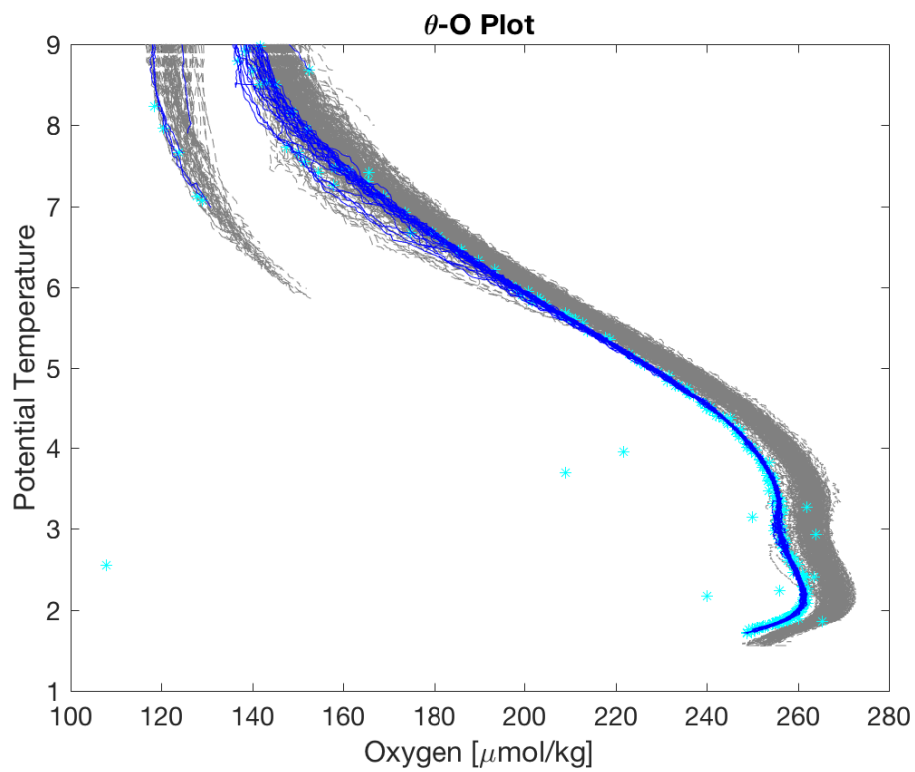


Figure 8: T-O plot of the calibrated sensor (blue) using the original bad oxygen samples (cyan) compared to the historical data (grey).



## 8 Post-Cruise Calibrations

Post cruise sensor calibrations were done at Sea-Bird Electronics, Inc. (Table 14 & 15). Secondary temperature, conductivity and dissolved oxygen sensors served as calibration checks for the reported primary sensors.

In-situ salinity and dissolved oxygen samples collected during each cast were used to calibrate the conductivity and dissolved oxygen sensors.

Several sensor combinations were used during the cruise as listed in Table 7. Primary TC pair T5898/C3861 was selected for final data reduction. Primary conductivity post-calibration shows a drift since last calibration of -0.0003 PSU/month. Primary temperature residual of 0.00005. The temperature residual is used to calculate the temperature offset since the last calibration and the conductivity drift is used as a check to the station drift coefficient we derive. Primary oxygen sensor, s/n 2691, was used for the final data reduction. In addition to the Seasave processing modules, a group of Matlab script files called AOML/CTDCAL Toolbox were used. These scripts were based on earlier work of different groups as well as in modern statistical tools. They cover all the steps of the CTD data processing from the preliminary comparisons between sensors or bottle samples to data reductions and final sensors calibrations.

Table 14: Post-Calibration coefficients for the conductivity sensors.

s/n 3861	s/n 3854	s/n 4229
April 23, 2014	April 24, 2014	April 24, 2014
$g = -1.02406797e+01$	$g = -1.04173234e+01$	$g = -9.73937240e+00$
$h = 1.36117321e+00$	$h = 1.58355917e+00$	$h = 1.50361823e+00$
$i = -6.02783494e-04$	$i = 1.51885502e-03$	$i = -1.40181978e-03$
$j = 1.10733316e-04$	$j = 2.13652651e-04$	$j = 1.98618128e-04$
$CP_{cor} = -9.5700e-08$	$CP_{cor} = -9.5700e-08$	$CP_{cor} = -9.5700e-08$
$CT_{cor} = 3.2500e-06$	$CT_{cor} = 3.2500e-06$	$CT_{cor} = 3.2500e-06$

Table 15: Post-Calibration coefficients for the temperature sensors.

s/n 5898	s/n 5237
April 24, 2014	April 23, 2014
$g = 4.35081330e-03$	$g = 4.41021953e-03$
$h = 6.26294438e-04$	$h = 6.80037366e-04$
$i = 1.91859680e-05$	$i = 2.86364525e-05$
$j = 1.37230704e-06$	$j = 2.23473962e-06$
$f_0 = 1000.0$	$f_0 = 1000.0$

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## 8.1 CTD Data Processing

By using the post cruise sensors calibrations; time drifts were estimated for the temperature and conductivity sensors (for estimated time drifts see the appropriate sections below). The processing module sequence used at sea is done again to include the time drifts as well the pressure correction. After this step the following Matlab scripts based on PMEL programs are applied to the CTD data:

- FILL\_SURFACE was used to copy the first good value of salinity, potential temperature, oxygen and oxygen current back to the surface. The program then calculated temperature and conductivity, and zeroed doc/dt of oxygen current for those records.
- DESPIKE1 removed spikes from primary oxygen current and oxygen temperature data, as well as removing spikes from the primary conductivity sensor. Data were linearly interpolated over de-spiked records. Conductivity was back calculated, and sigma-theta and potential temperature were recomputed for the interpolated records.
- DESPIKE2 removed spikes from secondary sensors in the same method as DESPIKE1.
- Package slowdown and reversals due to ship roll can move mixed water in tow in front of the CTD sensors. This mixture can create artificial density inversions and other artifacts. In addition to the SEASOFT module LOOPEDIT, DELOOP, computes values of density locally referenced between every 1 dbar of pressure to compute  $N^2 = (-g/p)(dp/dz)$  and linearly interpolated measured parameters over those records where  $N^2 \leq -1.0 \text{ e } -05 \text{ s}^{-2}$ .

## 8.2 CTD Pressure

Pressure sensor calibration coefficients derived from the pre-cruise calibrations were applied to raw pressure data during each cast. Residual pressure offsets (the difference between the first and last submerged pressures) were examined to check for calibration shifts (see Figure 9 and Table 16). Two pressure sensors were used during the cruise, s/n 1165 and s/n 0363. On deck pressures before the start of each cast was recorded and is plotted in Figure 9. The on deck pressure before and after the cast were stable at  $0.14 \pm 0.054$  dbar and  $-0.11 \pm 0.20$  dbar for s/n 1165 and  $0.84 \pm 0.075$  dbar and  $0.50 \pm 0.17$  dbar for s/n 0363, respectively. There is a noticeable shift with the end on deck pressure at station 36. This corresponds to the change in station depths; Station 28 and onwards were all less than 850 m. It is clear that the pressure offset needs to be corrected before final calibration of the data is complete. This was accomplished by applying an offset of 0.015 dbar (s/n 1165) and 0.67 dbar (s/n 0360) to the configuration files.

Near surface pressure values (which is taken as the near-surface pressure at the markscan and the last fired bottle pressure) showed larger variability, but no remarkable trends over the cruise ( $3.92 \pm 1.52$  dbar before and  $3.90 \pm 1.08$  dbar after (s/n 1165) and  $4.16 \pm 0.65$  dbar before and  $4.04 \pm 0.52$  dbar after (s/n 0360)).

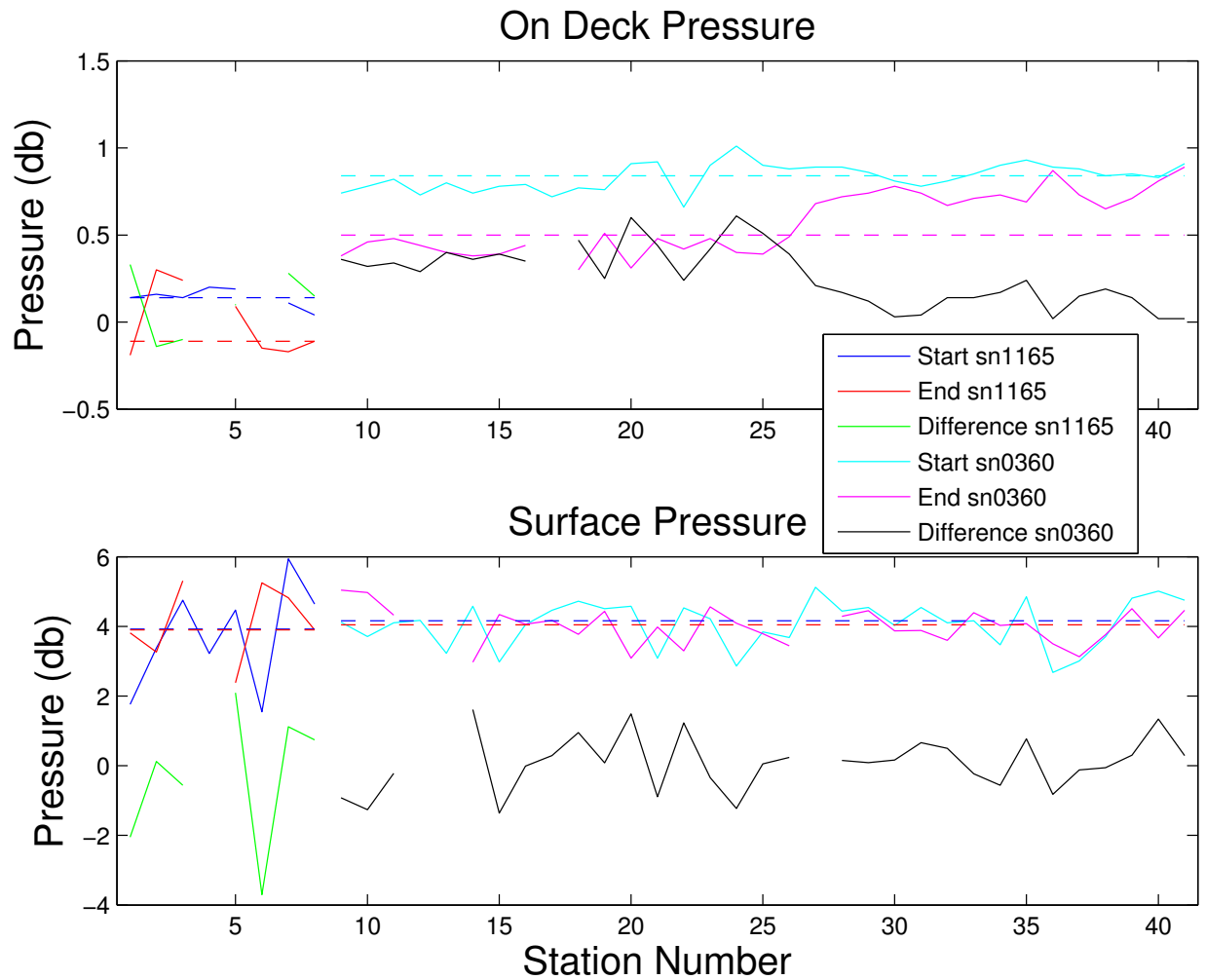


Figure 9: Pressure differences vs. station number. Top panel are the pressures measured on deck before the cast (blue), at the end of the upcast (red) and their respective difference (green) for s/n 1165 and on deck before the cast (cyan), at the end of the upcast (magenta) and their respective difference (black) for s/n 0360. Bottom panel are the sea surface pressure values measured at the start of the downcast (blue), at the end of the upcast (red) and their respective difference (green) for s/n 1165 and at the start of the downcast (cyan), at the end of the upcast (magenta) and their respective difference (black) for s/n 0360.

Table 16: Near surface Pressure values and scan number used to remove surface soak and on-deck values.

Station	Markscan	Deck Prs Start	Deck Prs End	Sfc Prs Start	Sfc Prs End
1	18930	0.1400	-0.1900	1.7600	3.8100
2	4663	0.1600	0.3000	3.3800	3.2600
3	5629	0.1400	0.2400	4.7500	5.3100
4	5586	0.2000	0.0000	3.2200	0.0000
5	3919	0.1900	0.0900	4.4700	2.3800
6	7677	0.0000	-0.1500	1.5500	5.2500
7	5723	0.1100	-0.1700	5.9400	4.8200
8	6776	0.0400	-0.1100	4.6400	3.9000
9	6079	0.7400	0.3800	4.1200	5.0400
10	3542	0.7800	0.4600	3.7100	4.9700
11	4963	0.8200	0.4800	4.1000	4.3200
12	5459	0.7300	0.4400	4.1700	0.0000
13	4710	0.8000	0.4000	3.2300	0.0000
14	6111	0.7400	0.3800	4.5800	2.9700
15	4143	0.7800	0.3900	2.9800	4.3400
16	5562	0.7900	0.4400	4.0500	4.0600
17	5567	0.7200	0.0000	4.4600	4.1700
18	7820	0.7700	0.3000	4.7200	3.7700
19	4881	0.7600	0.5100	4.5100	4.4300
20	7505	0.9100	0.3100	4.5800	3.0900
21	7047	0.9200	0.4800	3.0900	3.9800
22	6610	0.6600	0.4200	4.5300	3.3000
23	3679	0.9000	0.4800	4.2200	4.5600
24	9057	1.0100	0.4000	2.8600	4.0900
25	6287	0.9000	0.3900	3.8400	3.7900
26	6279	0.8800	0.4900	3.6800	3.4400
27	6951	0.8900	0.6800	5.1200	0.0000
28	4366	0.8900	0.7200	4.4400	4.2900
29	4932	0.8600	0.7400	4.5400	4.4500
30	4130	0.8100	0.7800	4.0300	3.8700
31	4320	0.7800	0.7400	4.5400	3.8800
32	4120	0.8100	0.6700	4.1000	3.6000
33	4170	0.8500	0.7100	4.1600	4.3900
34	6233	0.9000	0.7300	3.4700	4.0300
35	5892	0.9300	0.6900	4.8500	4.0800
36	4298	0.8900	0.8700	2.6800	3.5000
37	5153	0.8800	0.7300	3.0100	3.1300
38	4682	0.8400	0.6500	3.7000	3.7600
39	5118	0.8500	0.7100	4.8100	4.5100
40	5415	0.8300	0.8100	5.0100	3.6700
41	4667	0.9100	0.8900	4.7500	4.4600

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### 8.3 CTD Temperature

Temperature sensor calibration coefficients derived from the pre-cruise calibrations were applied to raw primary and secondary temperature data during each cast. Data accuracy, reproducibility and stability were examined by tabulating the difference between the two different temperature sensors over a range of pressures (bottle trip locations) for each cast. These comparisons are summarized in Figure 10, which shows a median temperature difference between the two sensors of  $-0.0007$  °C and a standard deviation of  $0.0005$  °C.

Following Seabird application note No. 31, a linear offset drift is applied between the pre-cruise calibration and the pos-cruise calibration value. The corrected temperature and offset are computed according to:

$$T_{cor} = slope * T_{CTD} + offset$$

and

$$offset = b * (residual/n)$$

where  $T_{cor}$  is the corrected temperature, the slope is taken to be 1,  $T_{CTD}$  is the sensor temperature,  $b$  is number of days between pre-cruise calibration and the cast to be corrected,  $n$  is the number of days between pre- and post-cruise calibrations, and  $residual$  is the residual from the post-calibration sheet (Sea-Bird Electronics, Inc., 2010).

The pressure dependence between the two temperature sensors is show below in Figure 11. There is a discrepancy in the downcast versus upcast profile slopes due to the pressure dependence effect in the strong gradient of the thermocline.

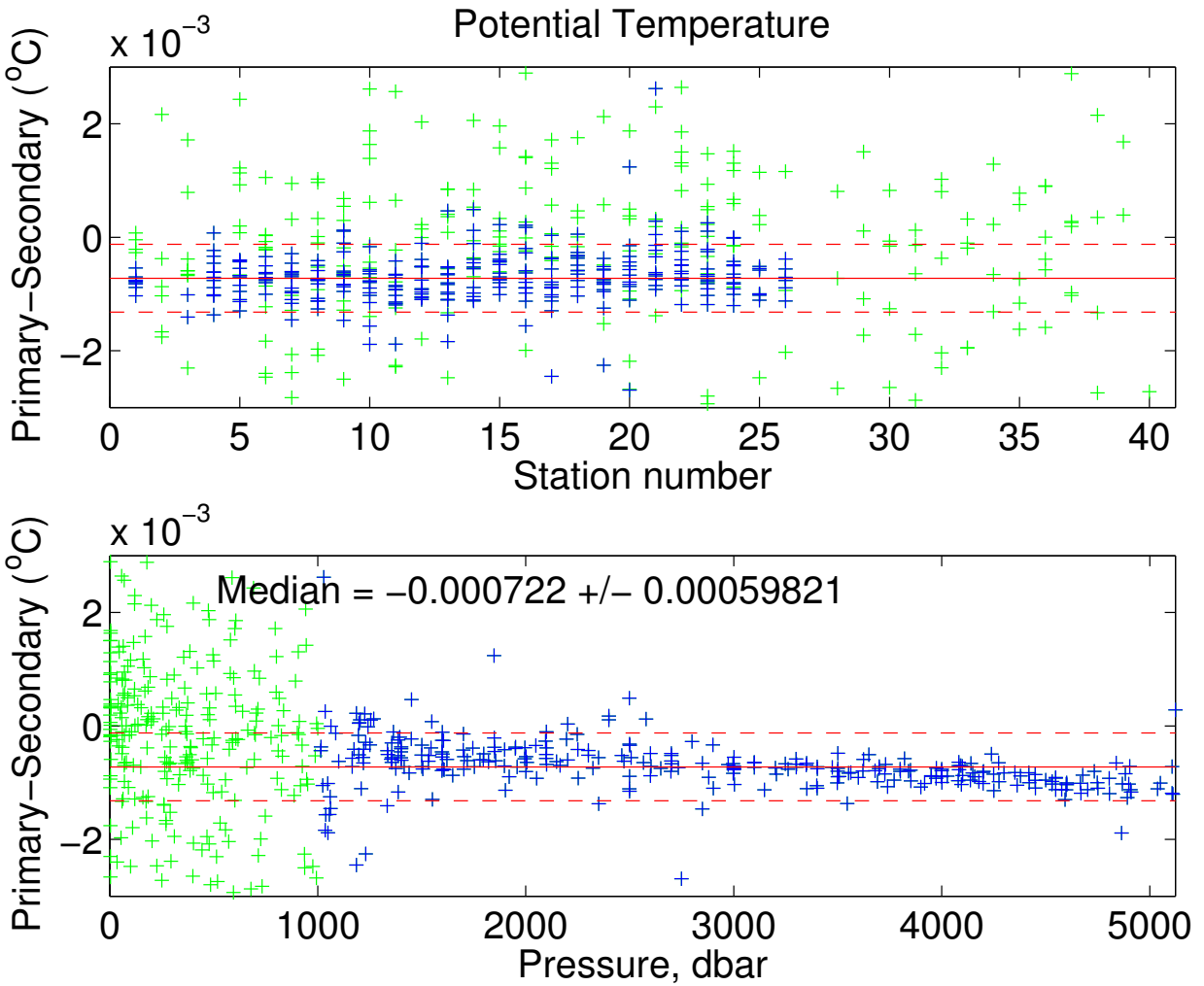


Figure 10: Temperature differences (after corrections) between sensors by station number (top) and pressure (bottom). The green represents the surface data down to 1000 dbar. The blue represents data below 1000 dbar. The red solid line represents the median with the red dashed representing the standard deviation (same for top and bottom).

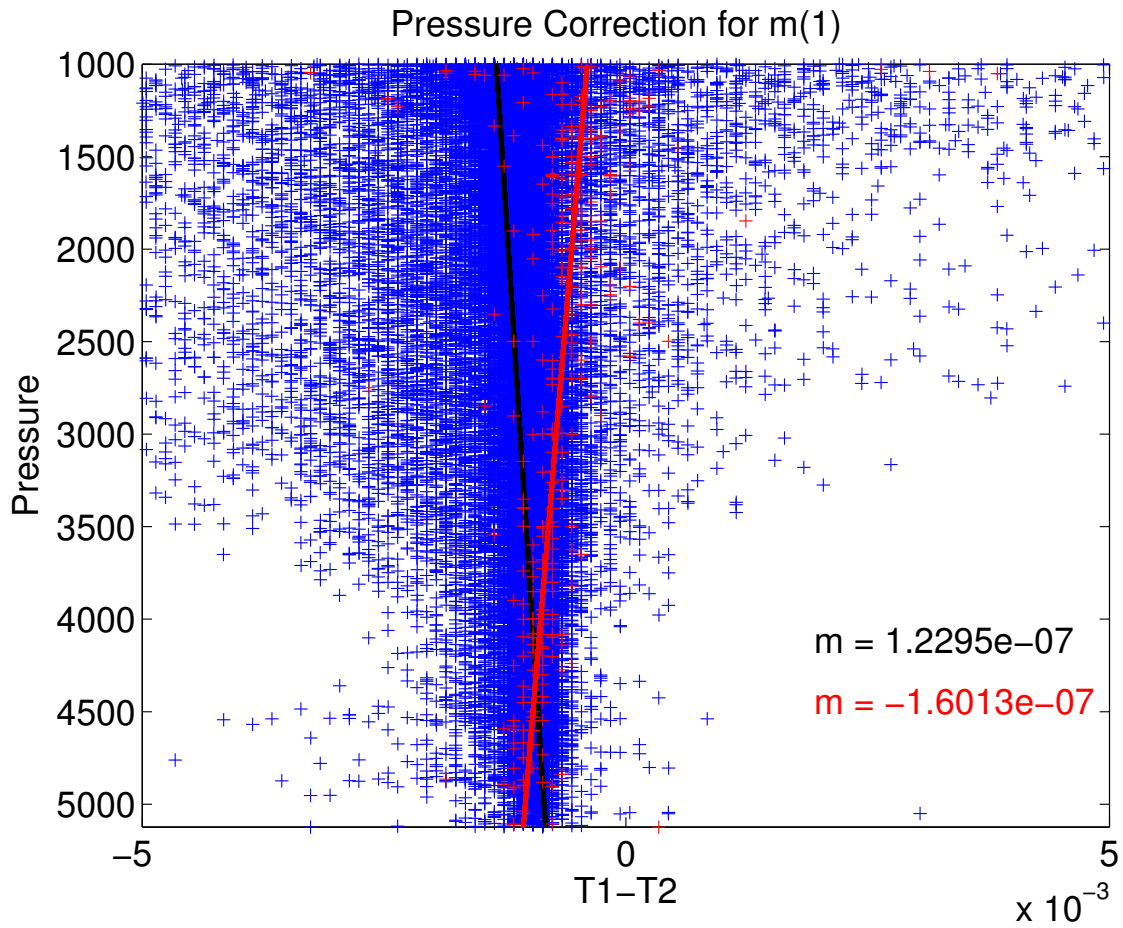


Figure 11: Pressure dependent correction for temperature differences of the downcast profile (blue) with slope fit (black) and the upcast with slope fit (red).

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## 8.4 Conductivity

Conductivity sensor calibration coefficients derived from the pre-cruise calibrations were applied to raw primary and secondary conductivities. Comparisons between the primary and secondary sensors and between each of the sensors to conductivity calculated from bottle salinities were used to derive conductivity corrections. Uncorrected C1-C2 are shown in Figure 12 to help identify sensor drift. Several conductivity sensor sets were used throughout the cruise. A slight shift in the deep water T-S plot was seen in the secondary conductivity sensor, s/n 3854, in stations 10 and 11 and replaced with s/n 4229. The sensors show a median difference of 0.00015 S/m and a standard deviation of 0.000065 S/m. Both sensors showed reasonable values for the residuals. The primary sensor, s/n 3861, was used for all the final data values (Figure 15).

The pressure dependence between the two pairs of conductivity sensors can be seen in Figures 13 and 14. In Figure 13 you can see two distinct downcast profiles in blue (stations 1-8) and yellow (stations 9-11). The secondary conductivity sensor shifted after station 8 and was replaced.

Despite the large variability of the data from station 28 on, the bottle values are kept in the database and used for the final calibration. Note also that these CTD stations were in the Northwest Providence Channel and Florida Straits where bottom depths do not exceed 850 m. The AOML/CTDCAL Toolbox automatically applies a quality control to the data based on comparison with a normal distribution. After these procedures 420 data points (74.47 %) were used in the final calculations. The low percentage of data points was due to several bad autosal runs being manually removed, including stations 1-5, 20, and 21.

In order to calibrate the CTD conductivity data against the sample conductivity we assume a constant additive correction (offset), multiplicative correction (slope), time drift correction (represented by station number) and where needed, a linear pressure-dependent term. A non-linear function is used to derive these coefficients and are applied to

$$C_{new} = [m * C_{CTD} + (p_1 * station) + b + pcor * P]$$

with

$$\begin{array}{r} \hline \text{s/n 3861} \\ \hline m=0.9999033 \\ p_1=-1.6147492e-05 \\ b=0.0030554 \\ pcor=-6.867571e-07 \end{array}$$

where  $C_{bottle}$  is bottle conductivity (S/m),  $C_{CTD}$  is pre-cruise calibrated CTD conductivity (S/m),  $m$  is the conductivity slope,  $b$  is the offset (S/m),  $P$  is the pressure,  $pcor$  is the pressure correction coefficient,  $station$  is the station number and  $p_1$  is the polynomial coefficient.



---

The fit is also weighted in such way that the final solution is preferentially forced to fit the data below a specified depth, in this case 1000 dbar.

The coefficients estimated by the equation above were then applied to the CTD conductivities and the final results (Figure 15 to Figure 19) show a residual of  $1.3 \cdot 10^{-4}$  psu ( $-5.6 \cdot 10^{-5}$  psu for the data below 1000 dbar) and a standard deviation of 0.0017 psu (0.001 psu for the data below 1000 dbar). Also 80.0% of the residuals for the data are within the confidence limits determined by the WOCE ( $\pm 0.002$  psu) and this number increases to 92.6% if we consider only the data below 1000 dbar.

A final verification about the quality of the data was made by comparing the results of this cruise with some historical data (Figure 20 and Figure 21). Water mass properties are very stable, specially for deeper layers of the ocean, that way by comparing these values we can have a very good estimative of the quality of these data.

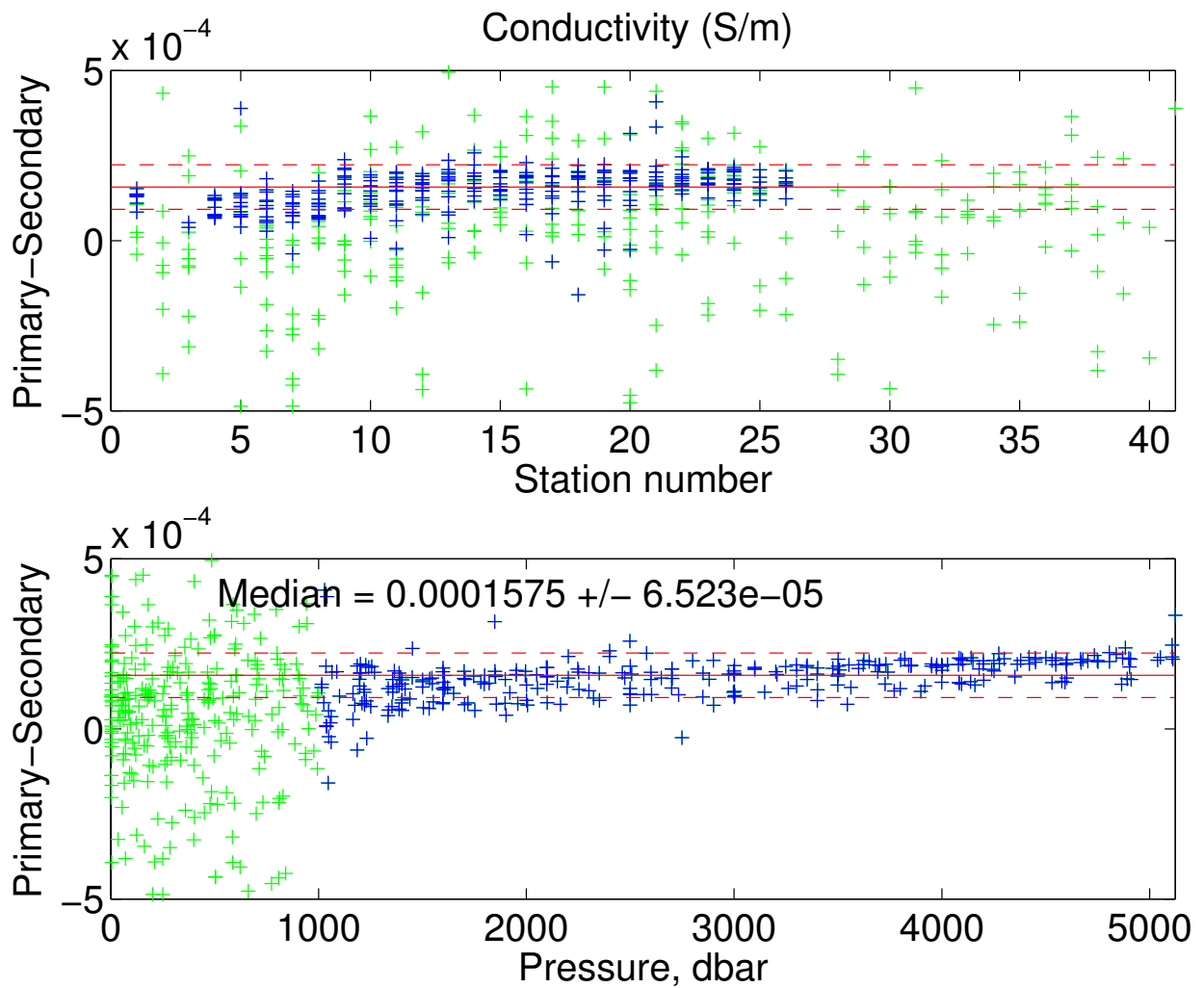


Figure 12: Conductivity (S/m) differences between sensors by station (top) and pressure (bottom). The red solid line represents the median with the red dashed representing the standard deviation.

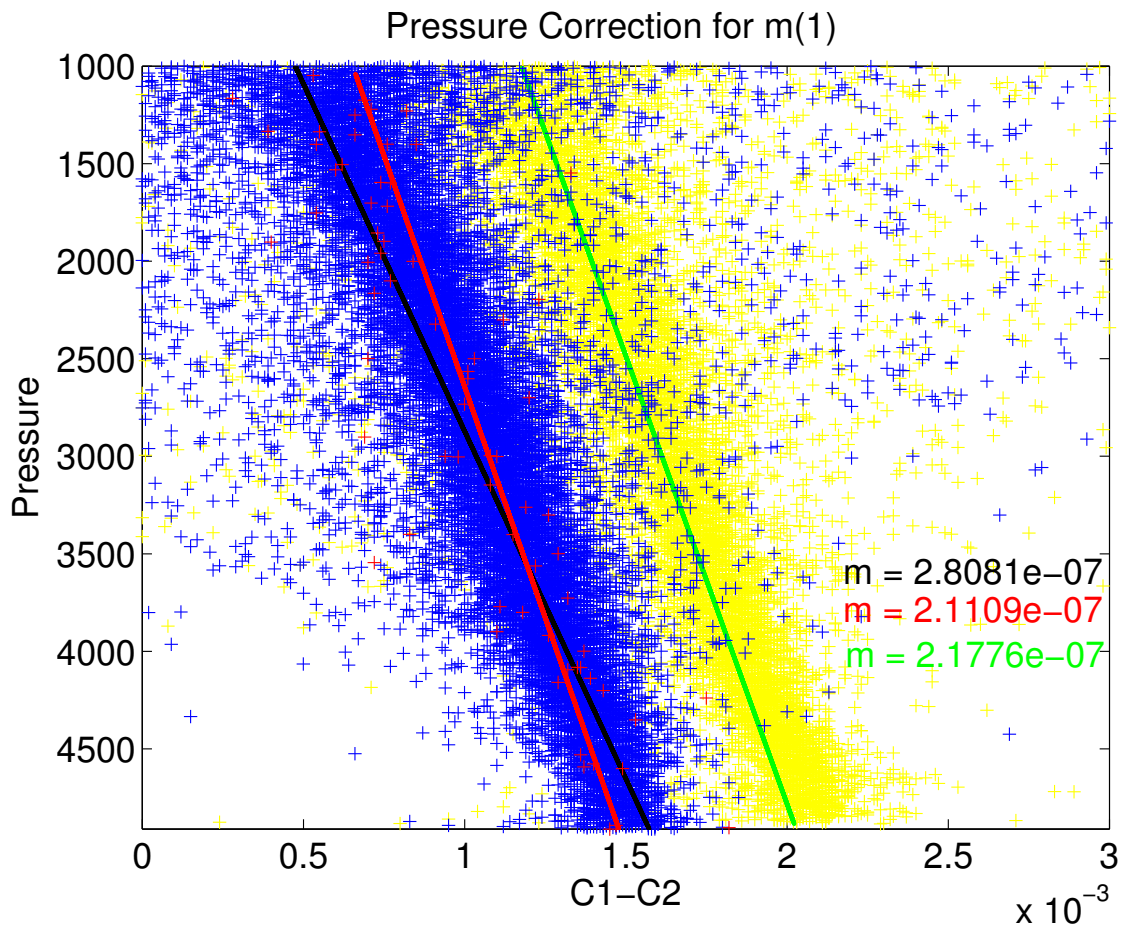


Figure 13: Pressure dependent correction for conductivity differences for stations 1-11. The downcast profile (blue) with slope fit (black) and the upcast with slope fit (red) represent stations 1-8, while the downcast profile (yellow) with slope fit (green) represent stations 9-11.

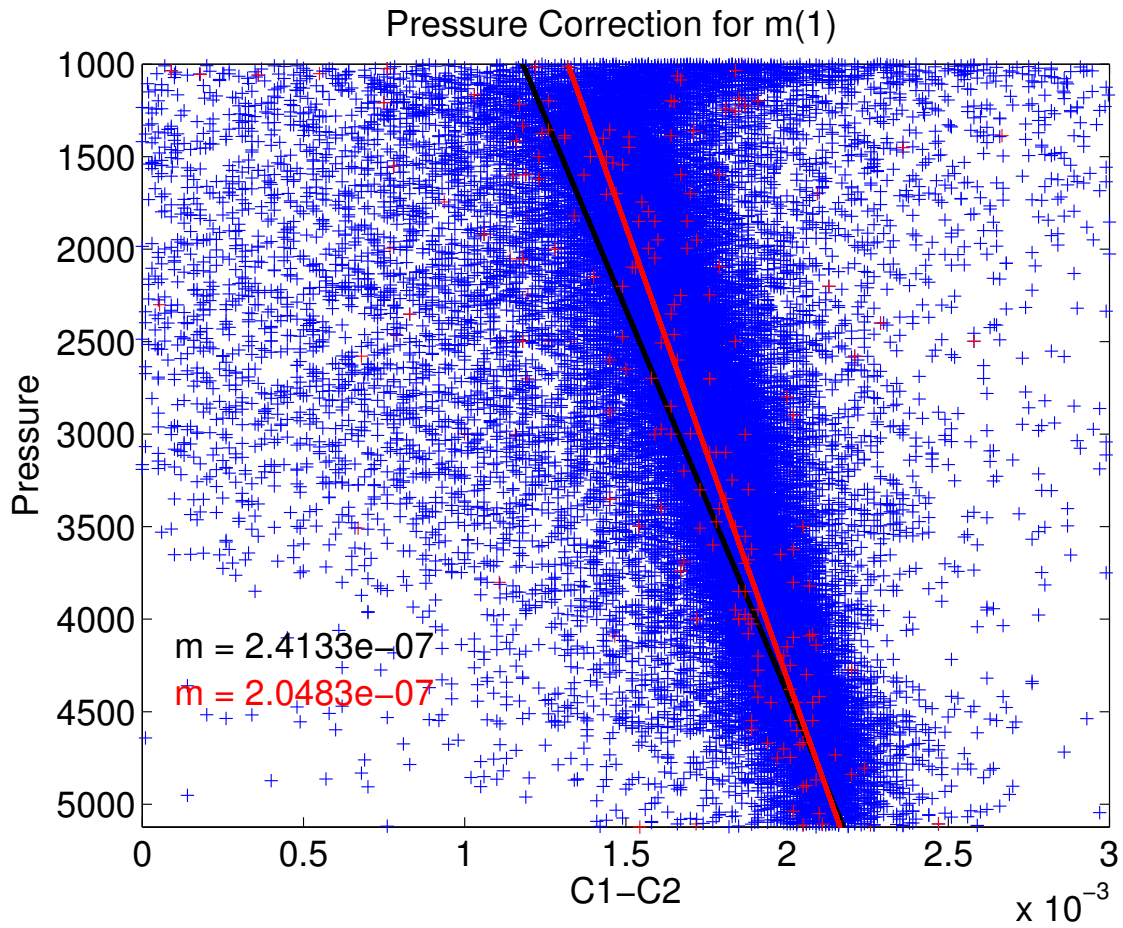


Figure 14: Pressure dependent correction for conductivity differences (stations 12-41) of the down-cast profile (blue) with slope fit (black) and the upcast with slope fit (red).

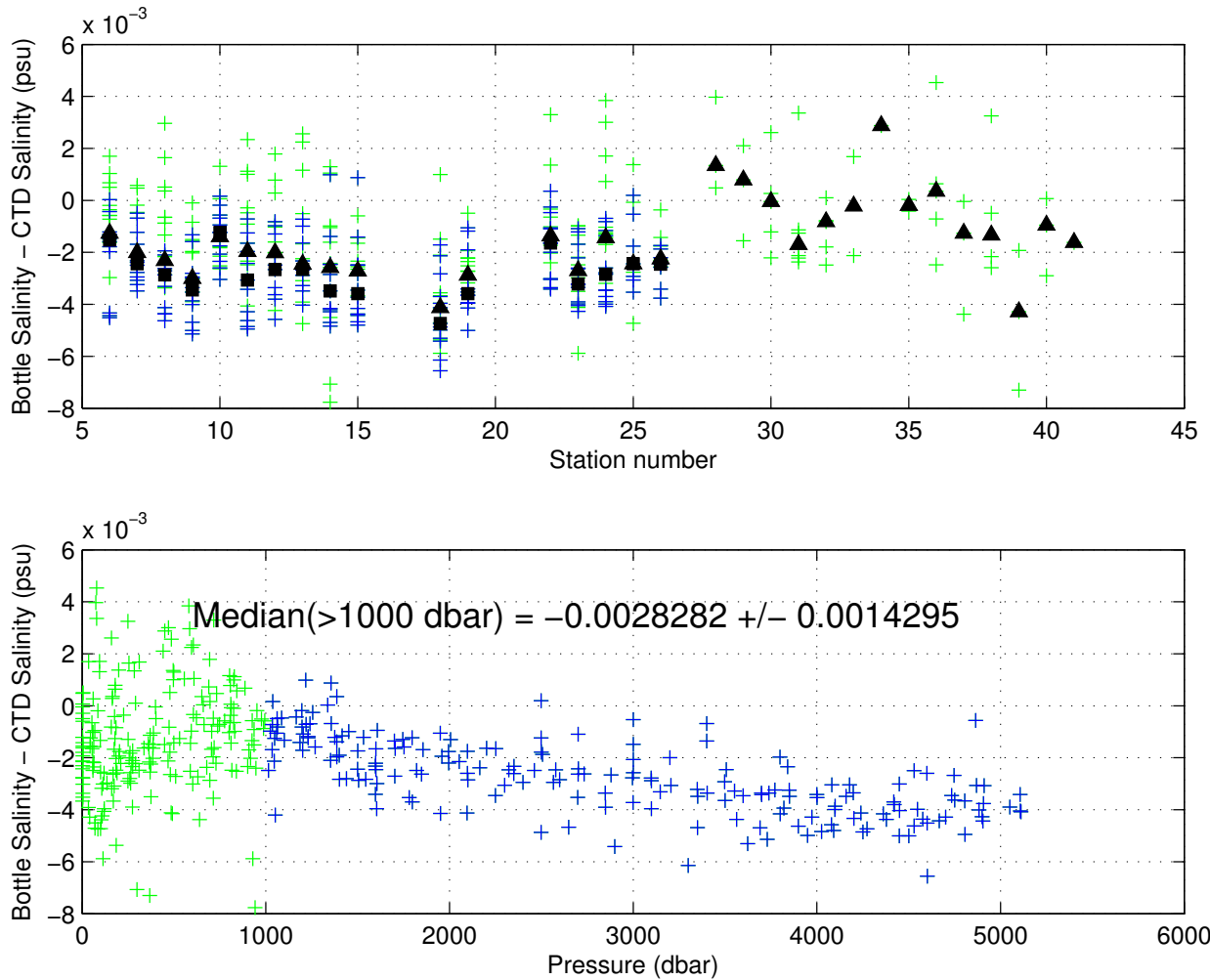


Figure 15: Bottle and uncalibrated primary CTD salinity differences plotted against pressure. The green crosses represent all data points and the blue are the data points below 1000 dbar. The median was calculated using only the data below 1000 dbar.

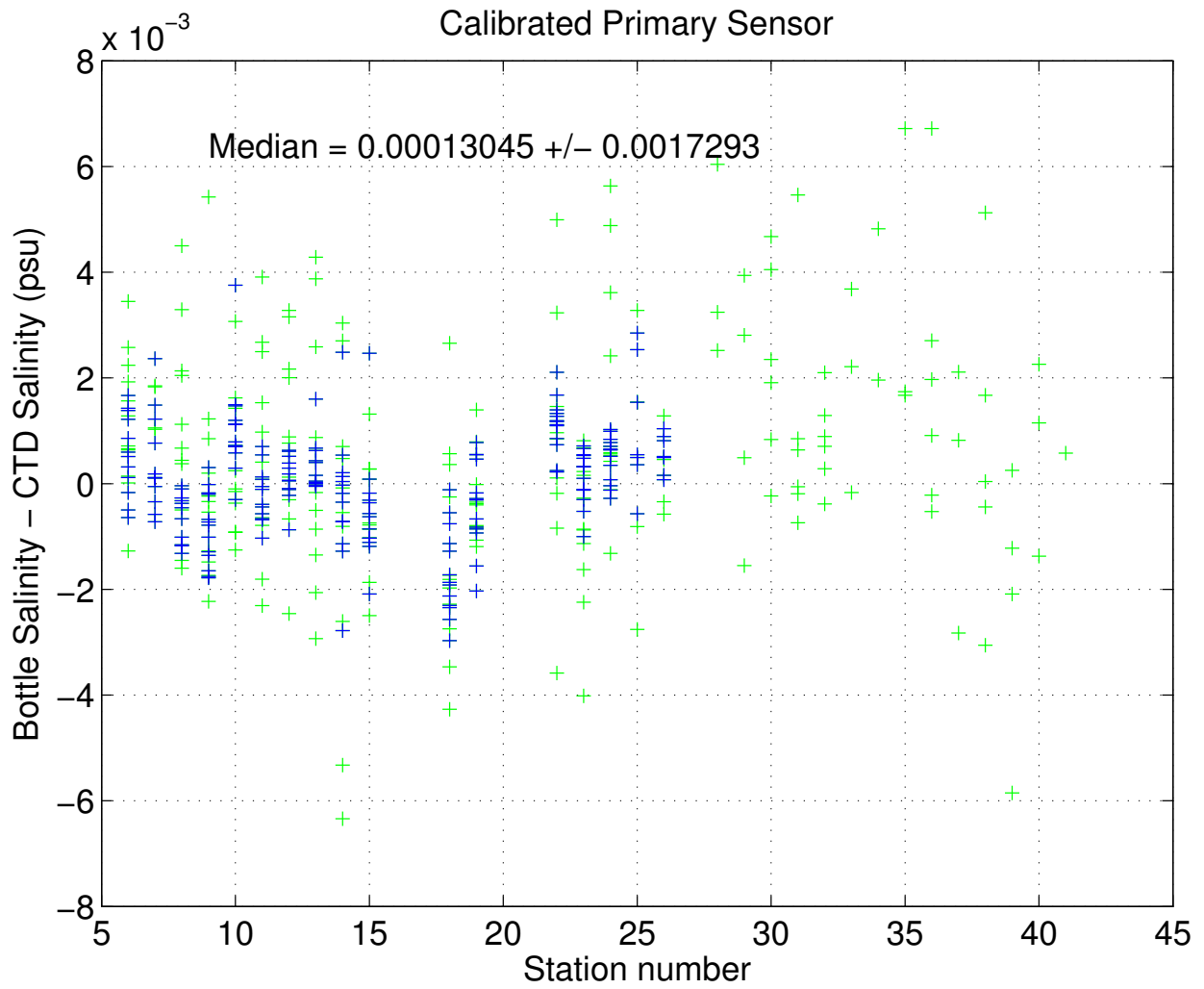


Figure 16: Bottle and calibrated primary CTD salinity differences plotted vs. station.

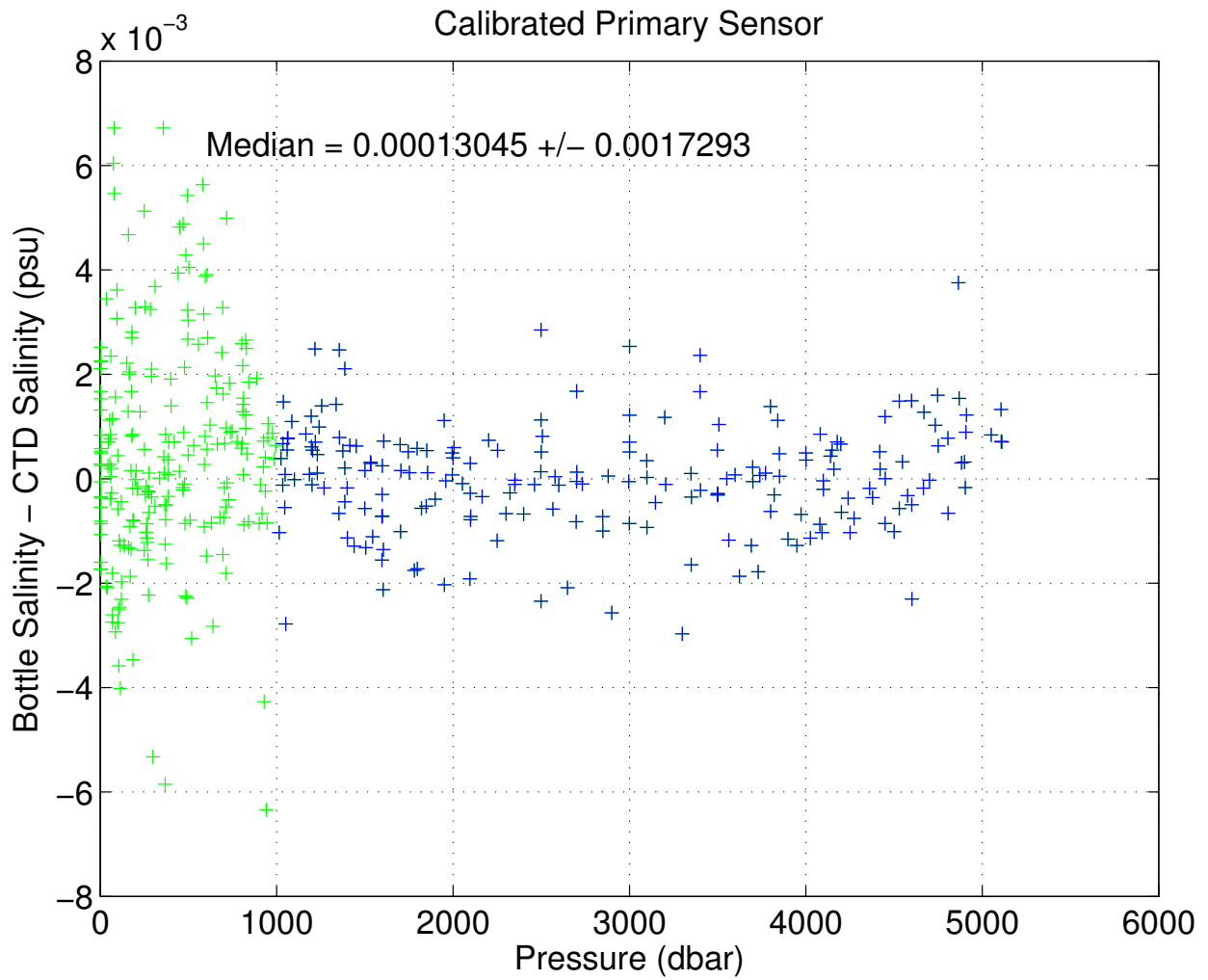


Figure 17: Bottle and calibrated primary CTD salinity differences plotted vs. pressure.

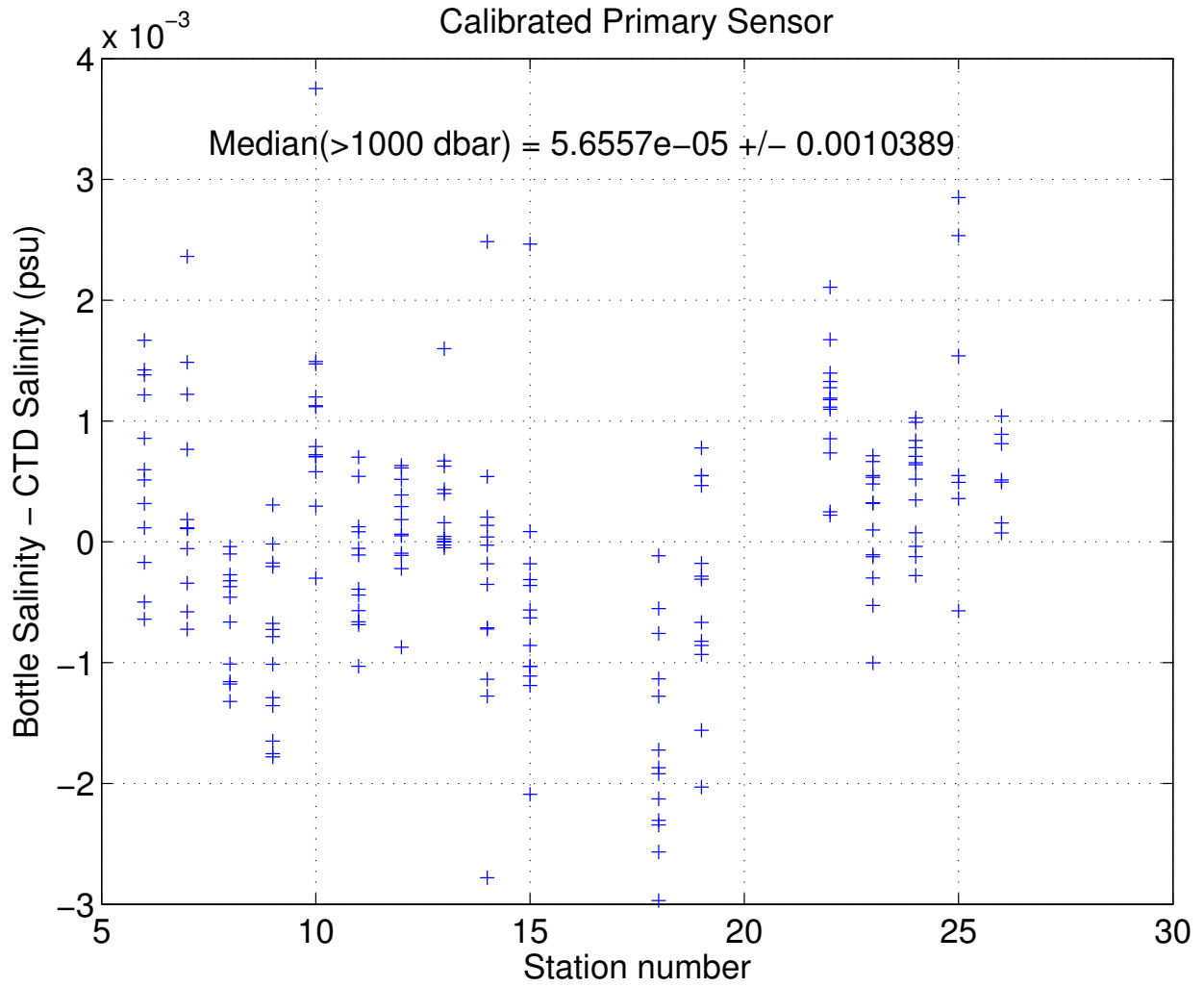


Figure 18: Bottle and calibrated primary CTD salinity differences plotted vs. station below 1000 dbar.



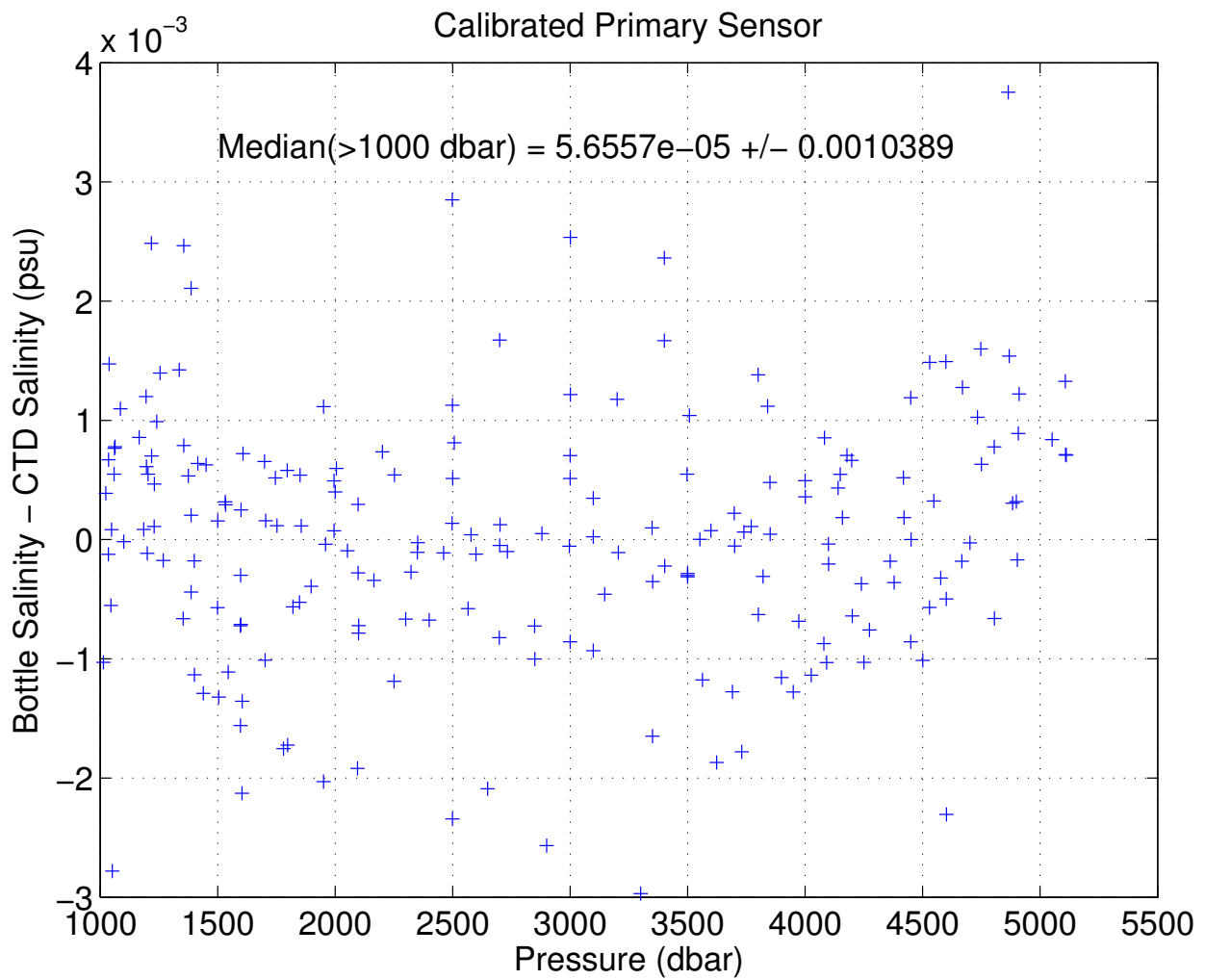


Figure 19: Bottle and calibrated primary CTD salinity differences plotted vs. pressure below 1000 dbar.

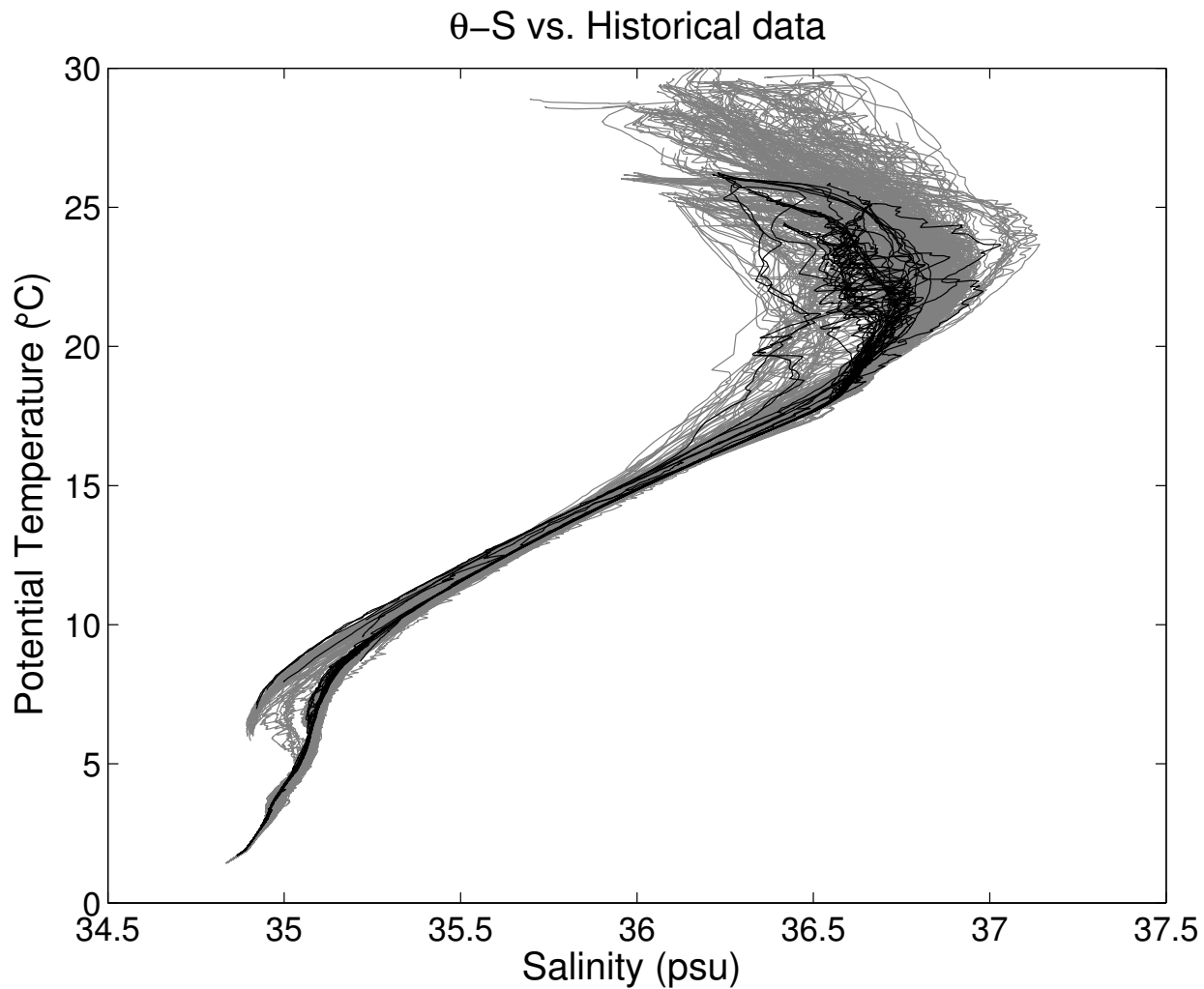


Figure 20: Potential Temperature - Salinity diagram for all stations. The solid black lines are the data collected during this cruise; the solid gray lines are data from the historical database.

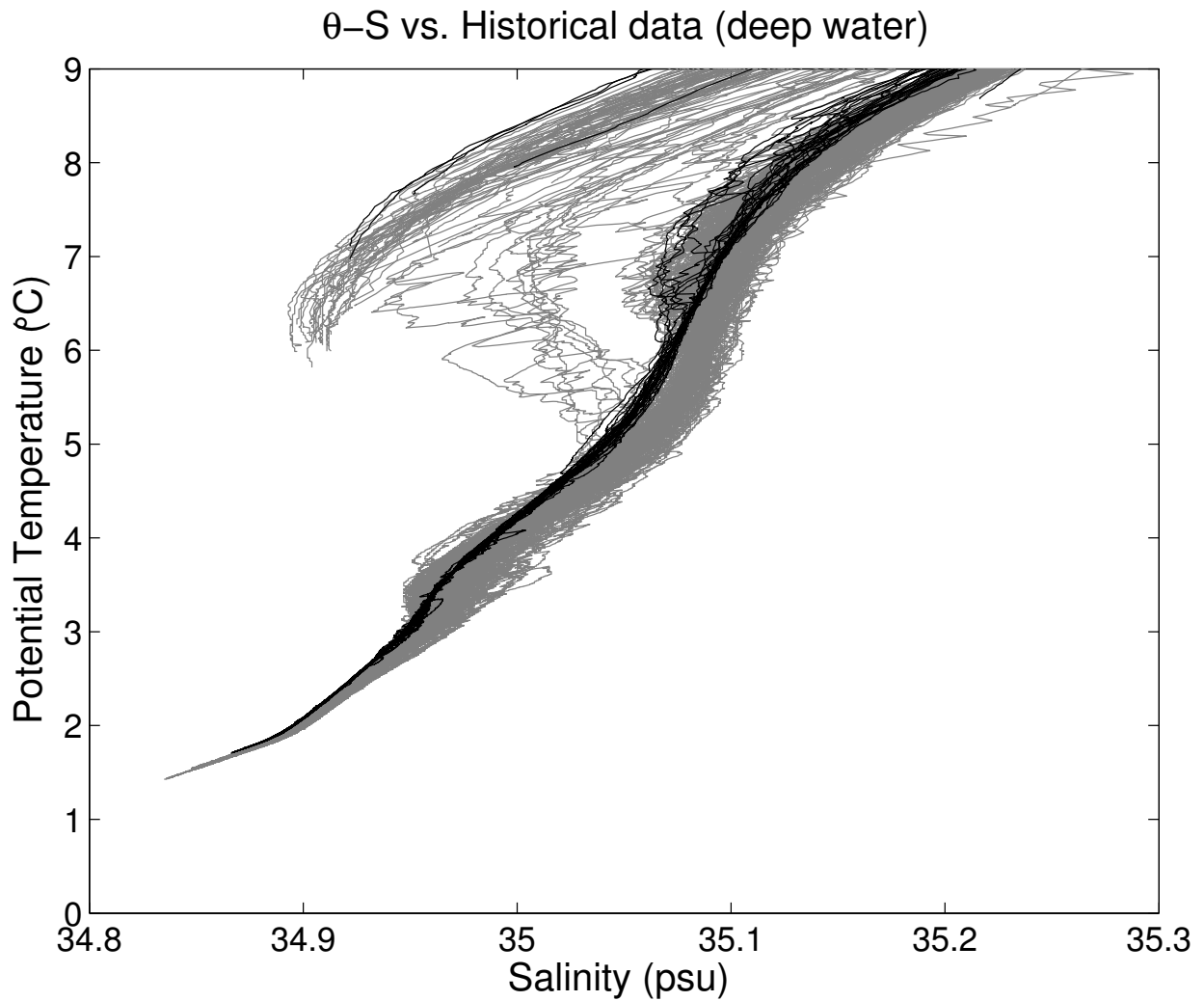


Figure 21: Potential Temperature - Salinity diagram for all stations. The solid black lines are the data collected during this cruise; the solid gray lines are data from the historical database.

## 8.5 Dissolved Oxygen

Three SBE43 dissolved O<sub>2</sub> (DO) sensors were used on this leg (Table 7). Due to a hysteresis problem with the oxygen sensors the DO sensors were calibrated to dissolved O<sub>2</sub> check samples by matching the up cast bottle trips to down cast CTD data along neutral density surfaces, calculating CTD dissolved O<sub>2</sub>, and then minimizing the residuals using a non-linear least-squares fitting procedure.

The algorithm used for converting oxygen sensor current and probe temperature measurements as described, requires a non-linear least squares regression technique in order to determine the best fit coefficients of the model for oxygen sensor behavior to the water sample observations. A Matlab® sub-routine called `oxfit.m` from the AOML CTD/CAL TOOLBOX performs a non-linear least squares regression using the Gauss-Newton algorithm with Levenberg-Marquardt modifications for global convergence. This algorithm is independent of the first coefficients guess and demonstrates excellent convergence. This `oxfit.m` routine includes an optional time drift term (related with the station number), allowing all stations to be calibrated without breaking into discrete groupings. The Owens and Millard (1985) algorithm was modified as follows:

$$O \text{ (ml/l)} = \left\{ Soc * (V + V_{offset} + tau(T, S) * \frac{\delta v}{\delta t}) + p1 * station \right\} \\ * (1.0 + A * T + B * T^2 + C * T^3) * OXSAT(T, S) * e^{E * (\frac{P}{K})}$$

with

	S/N 2691
<i>Soc</i>	0.4620716
<i>V<sub>offset</sub></i>	-0.4865345
<i>A</i>	-0.0094242
<i>B</i>	0.000507
<i>C</i>	-0.0000073
<i>E</i>	0.0365689
<i>tau</i>	-0.11
<i>p1</i>	0.0002416

where *Soc*, *tau*, *V<sub>offset</sub>*, *A*, *B*, *C*, *E* and *p1* are the calibration coefficients shown above and *V* is the instrument voltage (*V*). *T*, *S* and *P* are the temperature, salinity and pressure measured by the CTD. *K* is the temperature in the absolute scale, *station* is the station number, and *OXSAT* is the oxygen saturation.

A comparison between the primary and secondary sensors (Figure 22) was evaluated. There is a shift in the differences for stations 7 and 8, which was due to swapping out a sensor that was thought to be bad, but wasn't and the original sensor was put back on.

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The sensors show a median difference of  $-0.918 \text{ } \mu\text{mol}/\text{kg}$  and a standard deviation of  $2.78 \text{ } \mu\text{mol}/\text{kg}$ . The primary sensor was chosen (Figure 23) and the sensor shows a median difference of  $11.34 \text{ } \mu\text{mol}/\text{kg}$  and a standard deviation of  $4.22 \text{ } \mu\text{mol}/\text{kg}$  compare to the oxygen bottle data.

Stations from 28 and on correspond to the Florida Straits and Northwest Providence Channel (where bottom depths do not exceed 800 m). The coefficients for oxygen sensor, s/n 2691, were applied to all the stations. Also, analogous to the conductivity, AOML/CTDCAL Toolbox automatically applies a quality control to the data based on comparison with a normal distribution. After these procedures 355 data points (81.24%) were used in the final calculations.

By minimizing the differences between the oxygen samples and the CTD oxygen estimated from the equation described in this section, the new coefficients above were calculated and then applied to the CTD original data (Figure 24 to Figure 27). The residual is  $0.03 \text{ } \mu\text{mol}/\text{kg}$  ( $0.07 \text{ } \mu\text{mol}/\text{kg}$  for the data below 1000 dbar) and the standard deviation  $1.02 \text{ } \mu\text{mol}/\text{kg}$  ( $0.72 \text{ } \mu\text{mol}/\text{kg}$  for the data below 1000 dbar). Also 100% of the residuals for the data are within the confidence limits determined by the WOCE ( $\pm 1\%$  of the dissolved oxygen measured).

A final verification about the quality of the data, like in the salinity data, was made by comparing the results of this cruise with some historical data available at the location of the Abaco section and the other sections (Figure 28 & Figure 29). Again by investigating water mass properties, particularly for deeper layers of the ocean, we can have an estimative of the quality of these data.

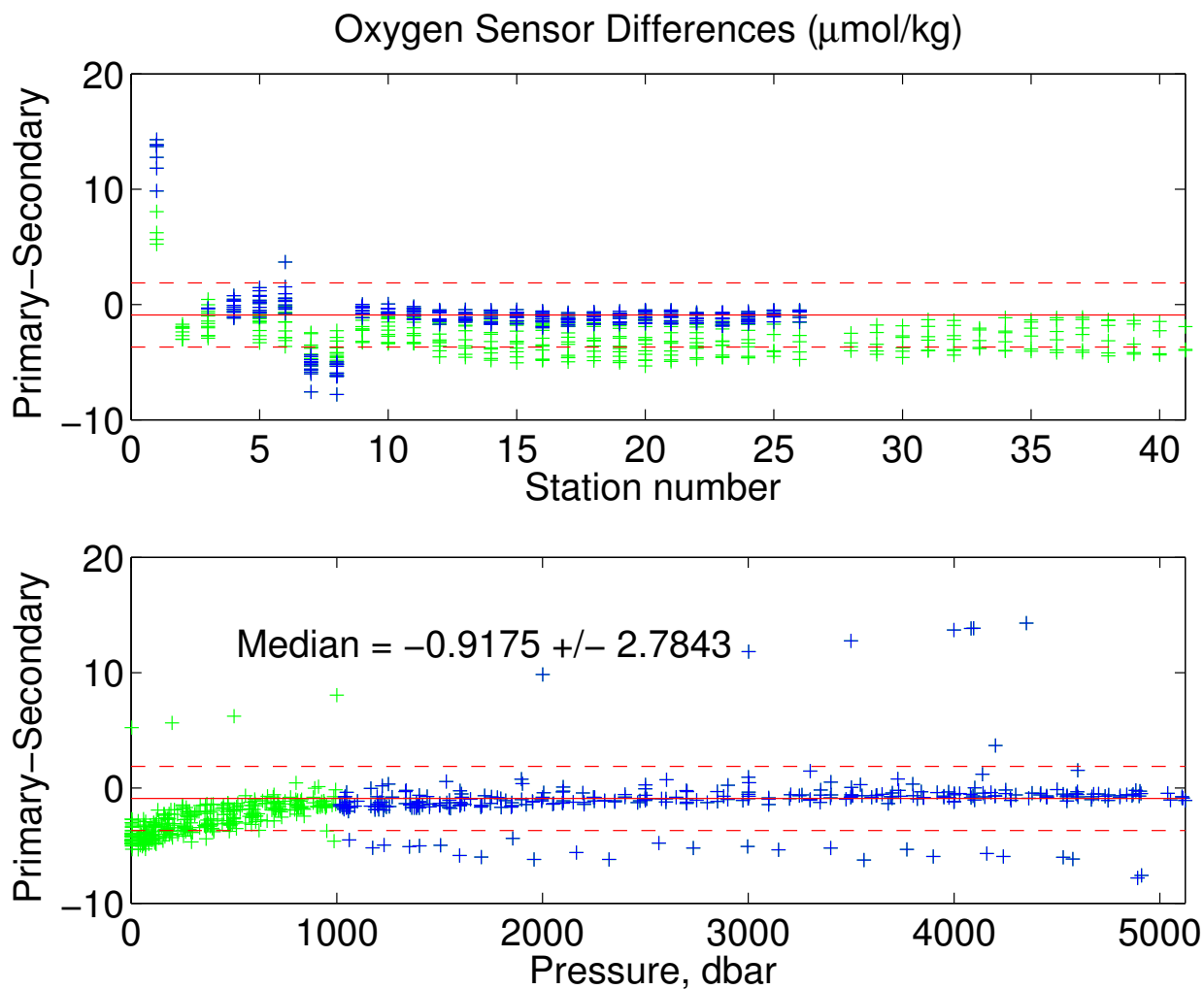


Figure 22: Dissolved oxygen differences between sensors by station (top) and by pressure (bottom). Sensor changes at station 15 and 24. The red solid line represents the median with the red dashed representing the standard deviation.

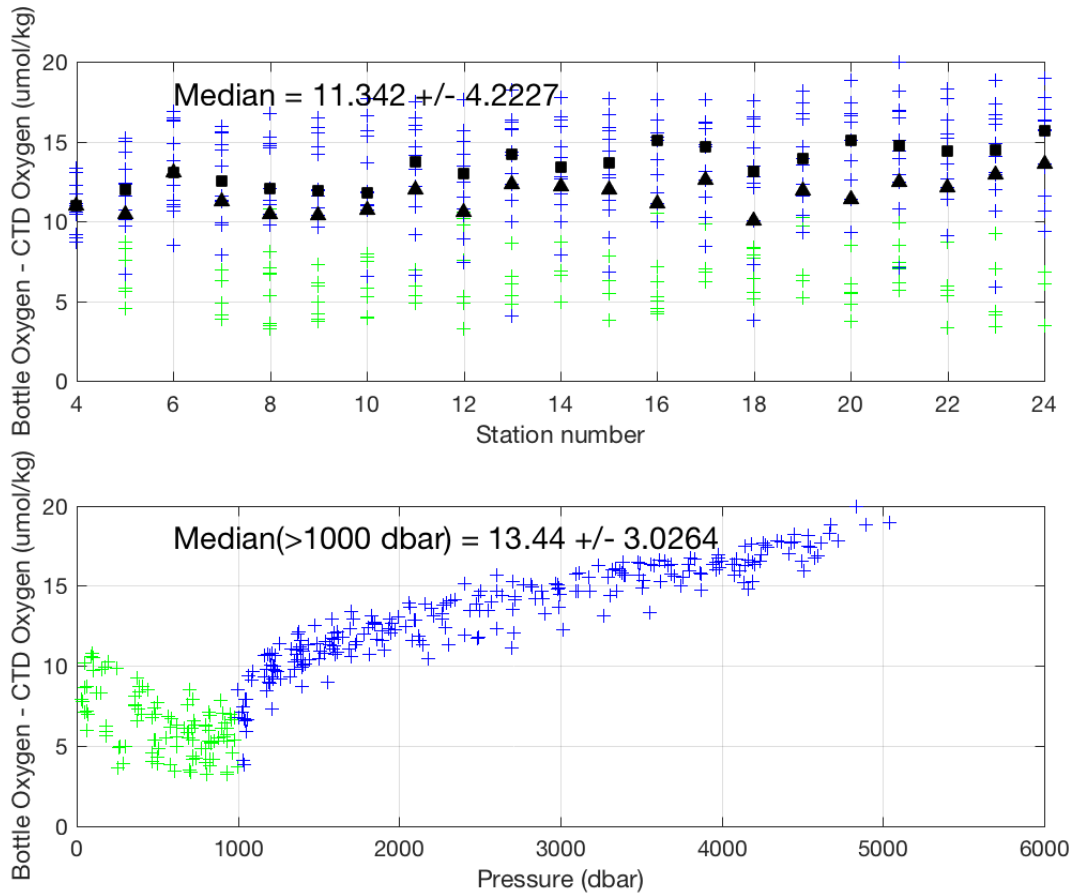


Figure 23: Bottle and uncalibrated primary CTD oxygen differences plotted against station number. The green crosses represent all data points and the blue are the data points below 1000 dbar. The median was calculated using only the data below 1000 dbar.

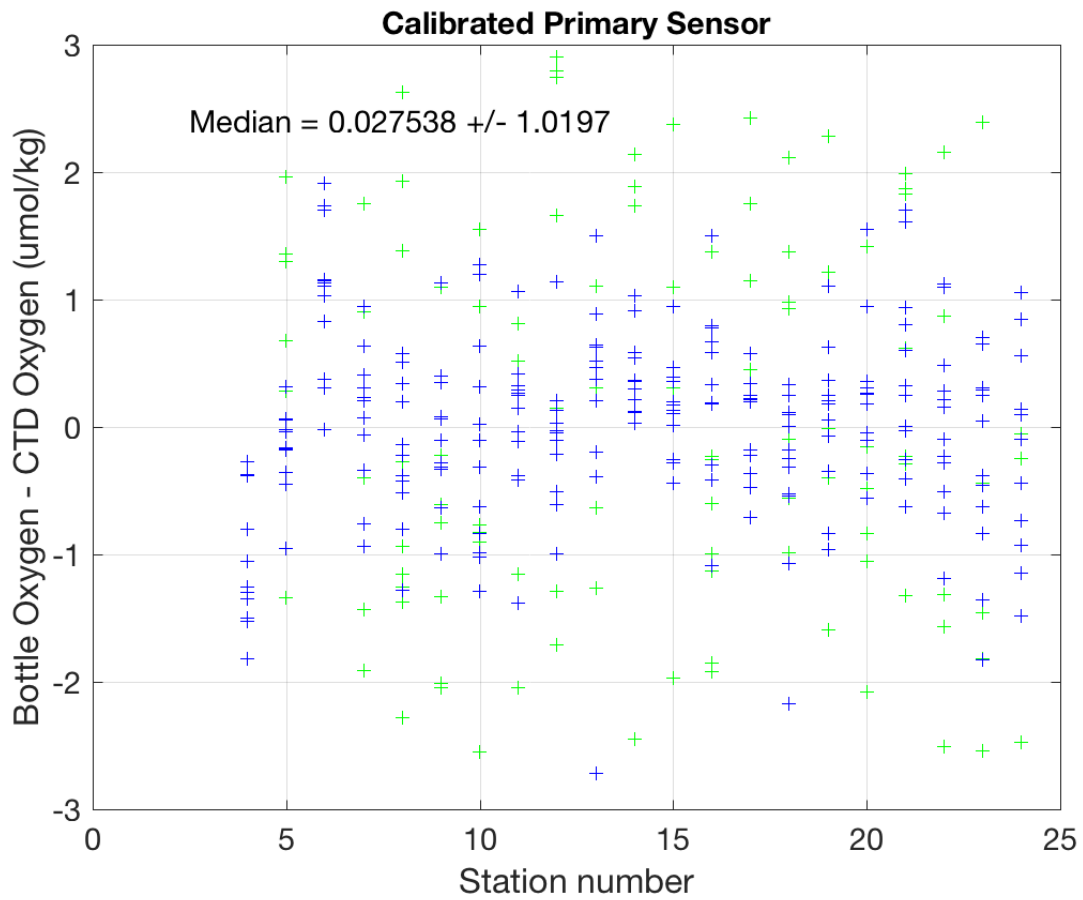


Figure 24: Bottle and calibrated primary CTD oxygen differences plotted vs. station.



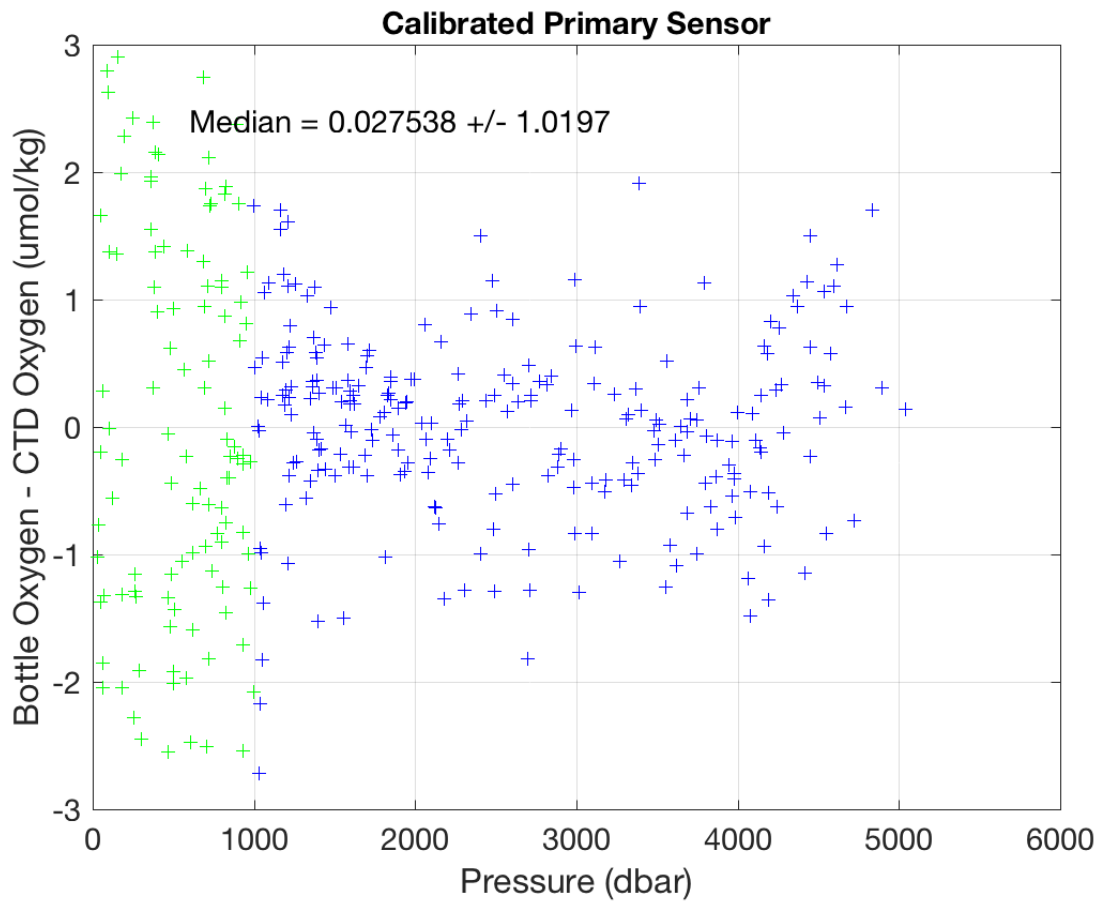


Figure 25: Bottle and calibrated primary CTD oxygen differences plotted vs. pressure.

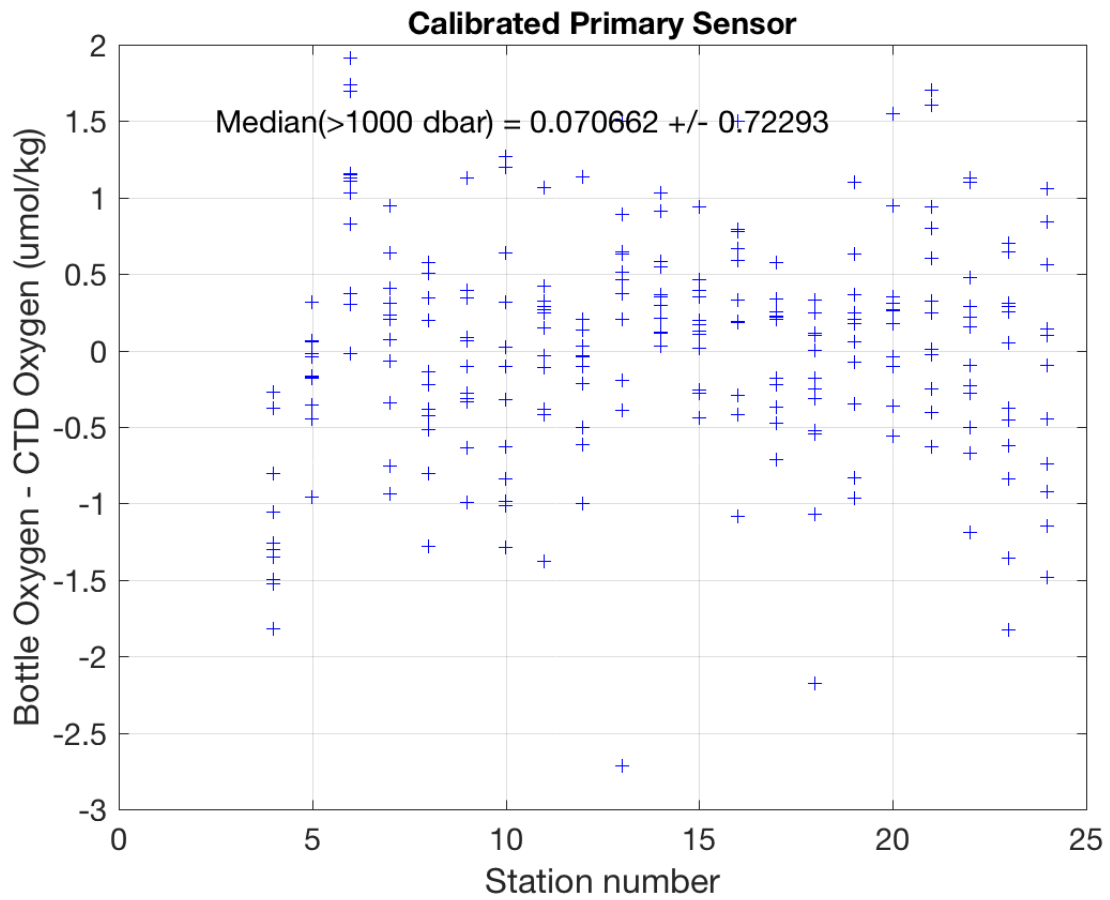


Figure 26: Bottle and calibrated primary CTD oxygen differences plotted vs. station below 1000 dbar.

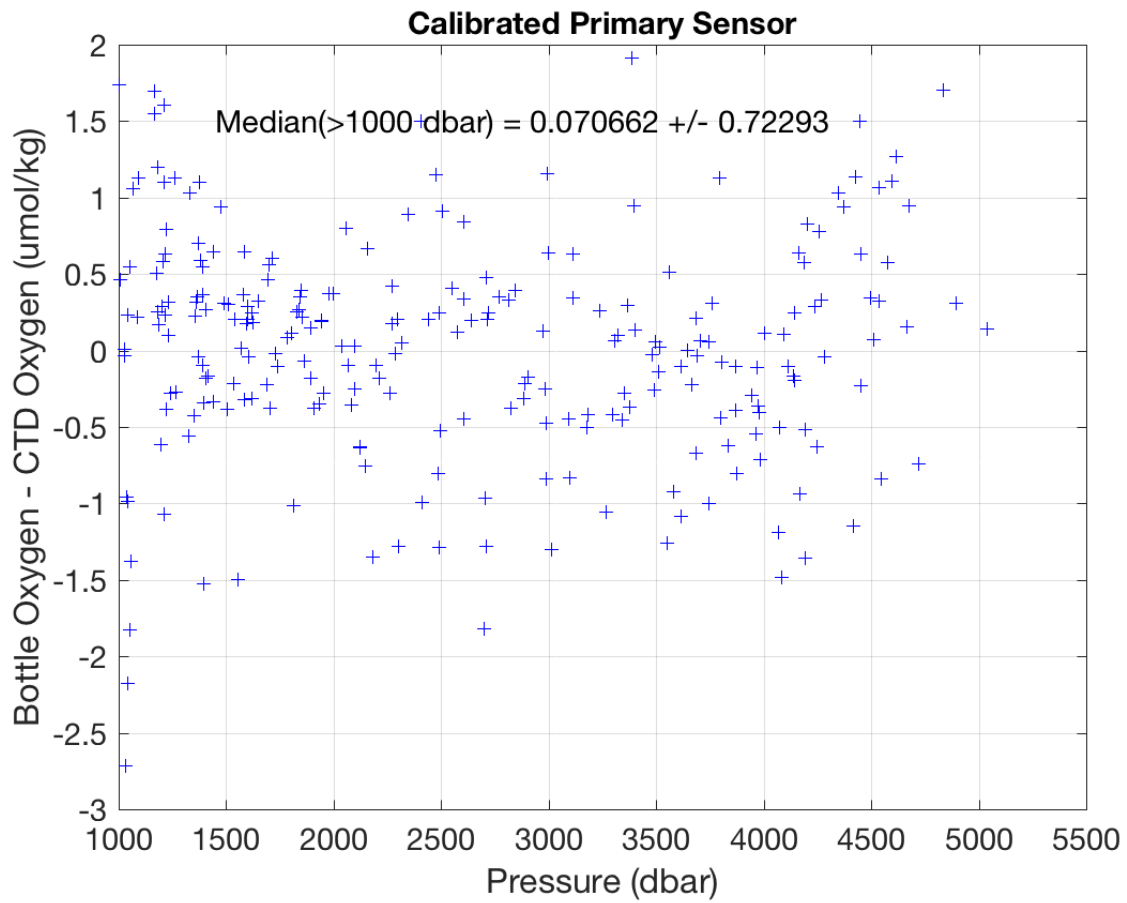


Figure 27: Bottle and calibrated primary CTD oxygen differences plotted vs. pressure below 1000 dbar.

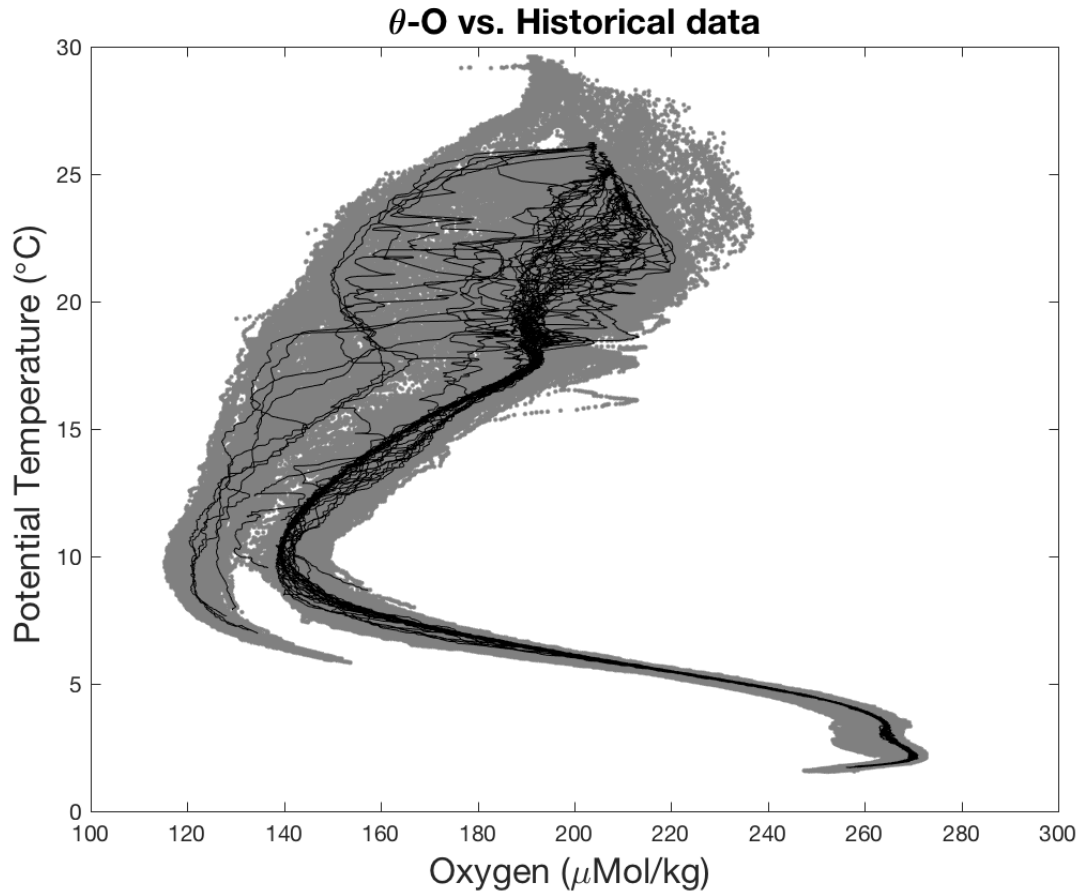


Figure 28: Potential Temperature - Oxygen diagram for all stations. The solid black lines are the data collected during this cruise; the solid gray lines are data from the historical database.

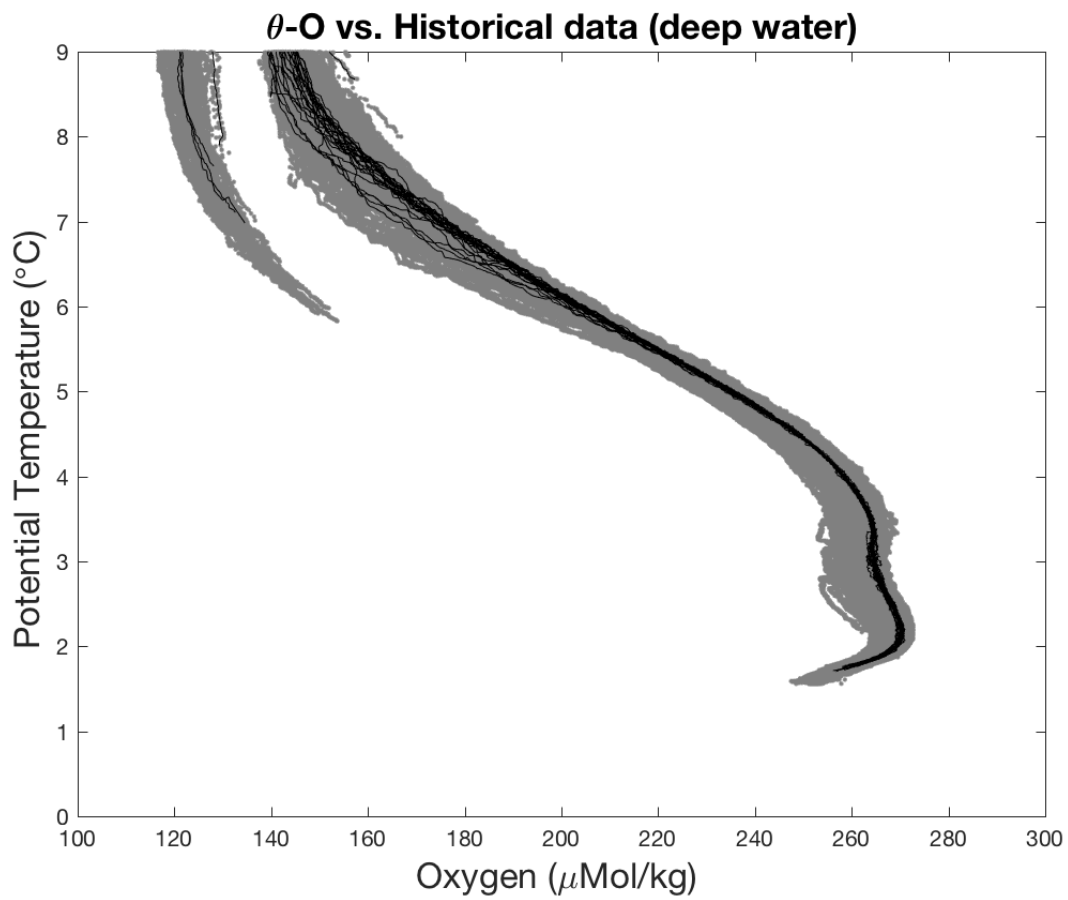


Figure 29: Potential Temperature - Oxygen diagram for all stations. The solid black lines are the data collected during this cruise; the solid gray lines are data from the historical database.

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## 9 *Final CTD Data Presentation*

The final calibrated data files were used to produce the tables and station profile plots presented in Appendix A for each CTD station. The table on the top is in "standard depths" followed by the a table of the bottle trip depths. The corresponding profile plot is shown on the following page. Niskin bottle depths are presented on the right side of the profile plot. Bottle salinity and oxygen values are plotted as points in the three smaller plots.

Vertical sections of potential temperature, CTD salinity, neutral density, and CTD oxygen are contoured with pressure as the vertical axis and, for Abaco sections longitude as horizontal axis (Figure 30 to Figure 33). Nominal vertical exaggerations are 400:1 below 1000 dbar (lower panels) and 200:1 above 1000 dbar (upper panels). The Florida Current Section also uses longitude as the horizontal axis (Figure 34 to Figure 37). For the North-west Providence Channel Sections latitude is used as horizontal axis (Figure 38 to Figure 41).

Post-cruise calibrations were applied to CTD data associated with bottle data using Matlab sub-routines (`apply_calibration.m`). WOCE quality flags were appended to bottle data records. "Bad values" (WOCE quality control value = 4) were flagged if the bottle samples failed the initial quality control and were not used for the calibration (which meant they typically fell outside 2.57 standard deviations of the difference between samples and uncalibrated CTD values). A second pass is applied, using the value of 2.5 times the standard deviation of the difference between calibrated CTD values and bottle samples, where bottle values may be flagged as "bad values" or as questionable (WOCE quality control value = 3).

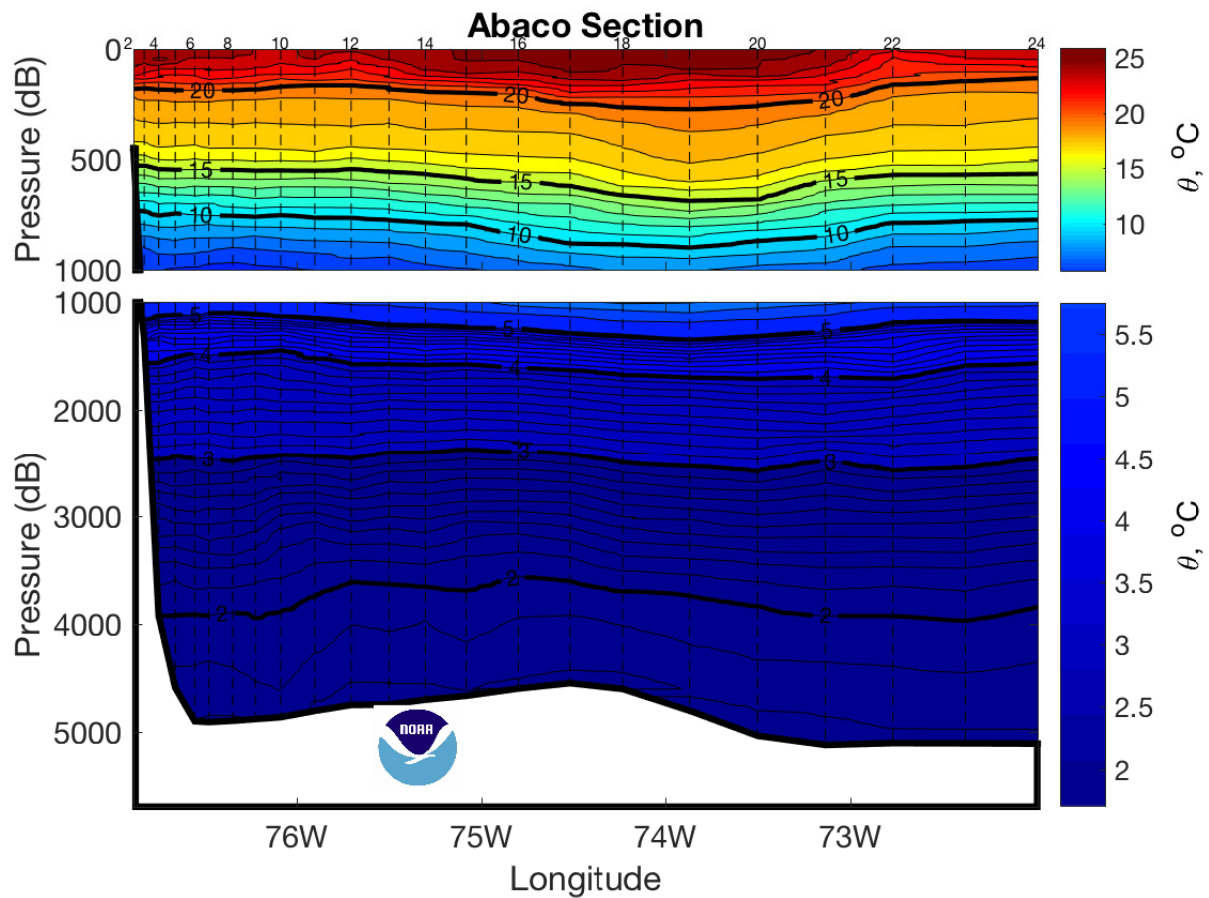


Figure 30: Potential Temperature ( $^{\circ}\text{C}$ ) section for the Abaco Section. Dashed vertical lines are the CTD station locations.

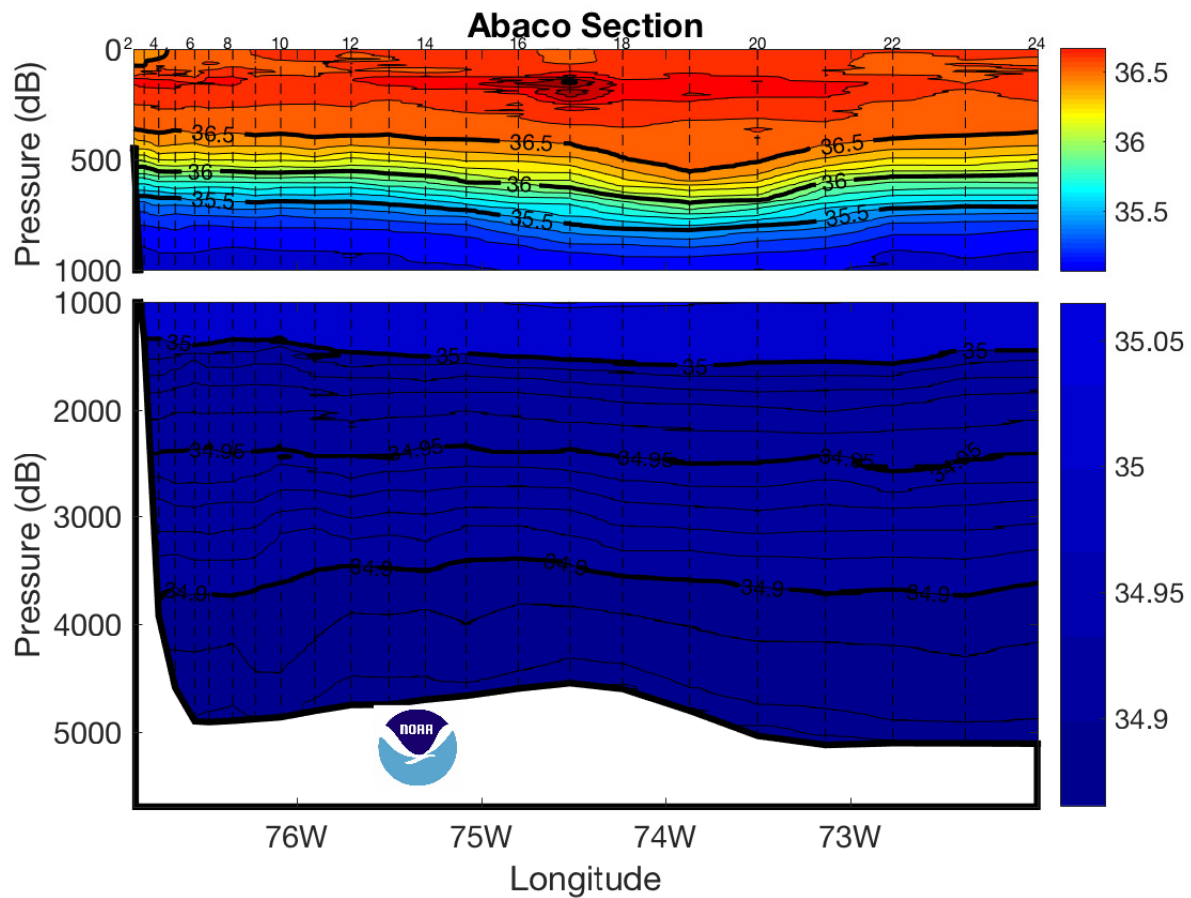


Figure 31: Salinity (PSS 78) section for the Abaco section. Dashed vertical lines are the CTD station locations.



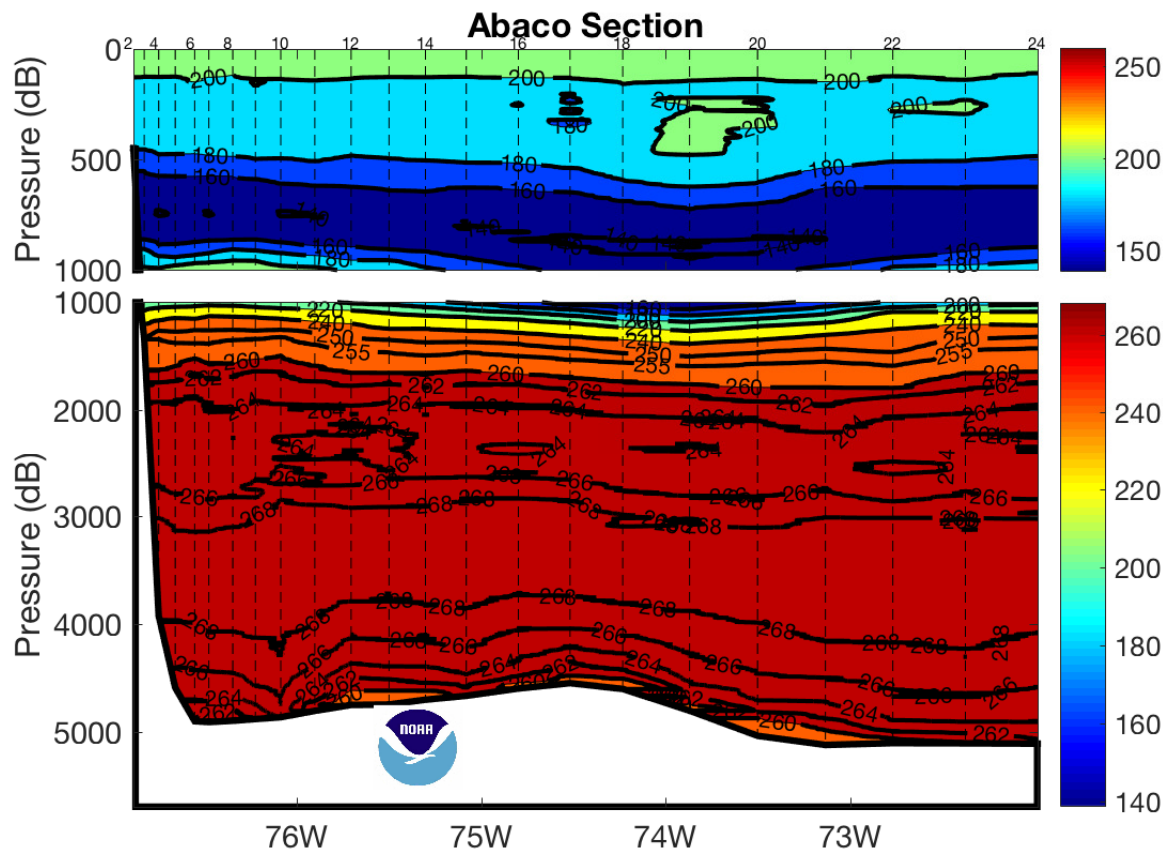


Figure 32: Dissolved Oxygen ( $\mu\text{mol}/\text{kg}$ ) section for the Abaco Section. Dashed vertical lines are the CTD station locations.

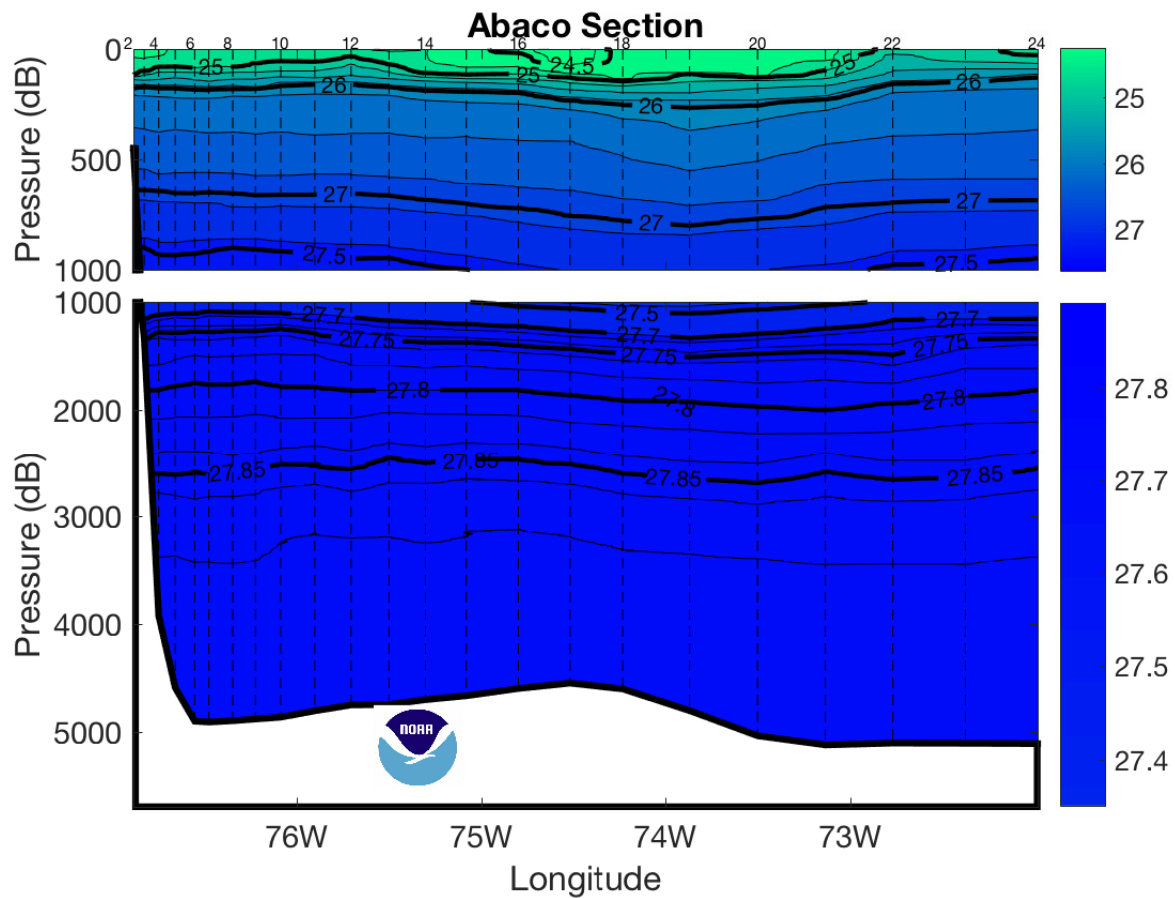


Figure 33: Neutral density (kg/m<sup>3</sup>) section for the Abaco Section. Dashed vertical lines are the CTD station locations.

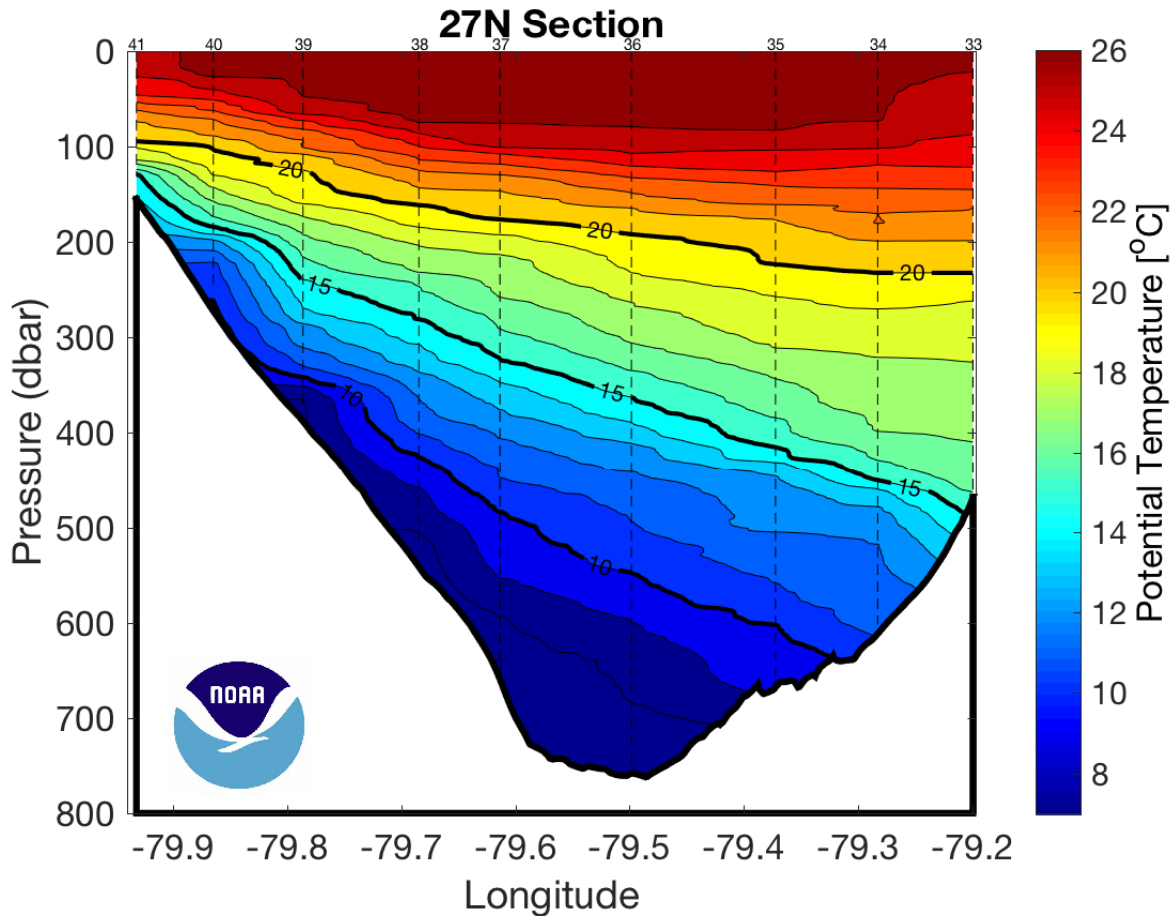


Figure 34: Potential Temperature (°C) section for the Florida Current North section. Dashed vertical lines are the CTD station locations.

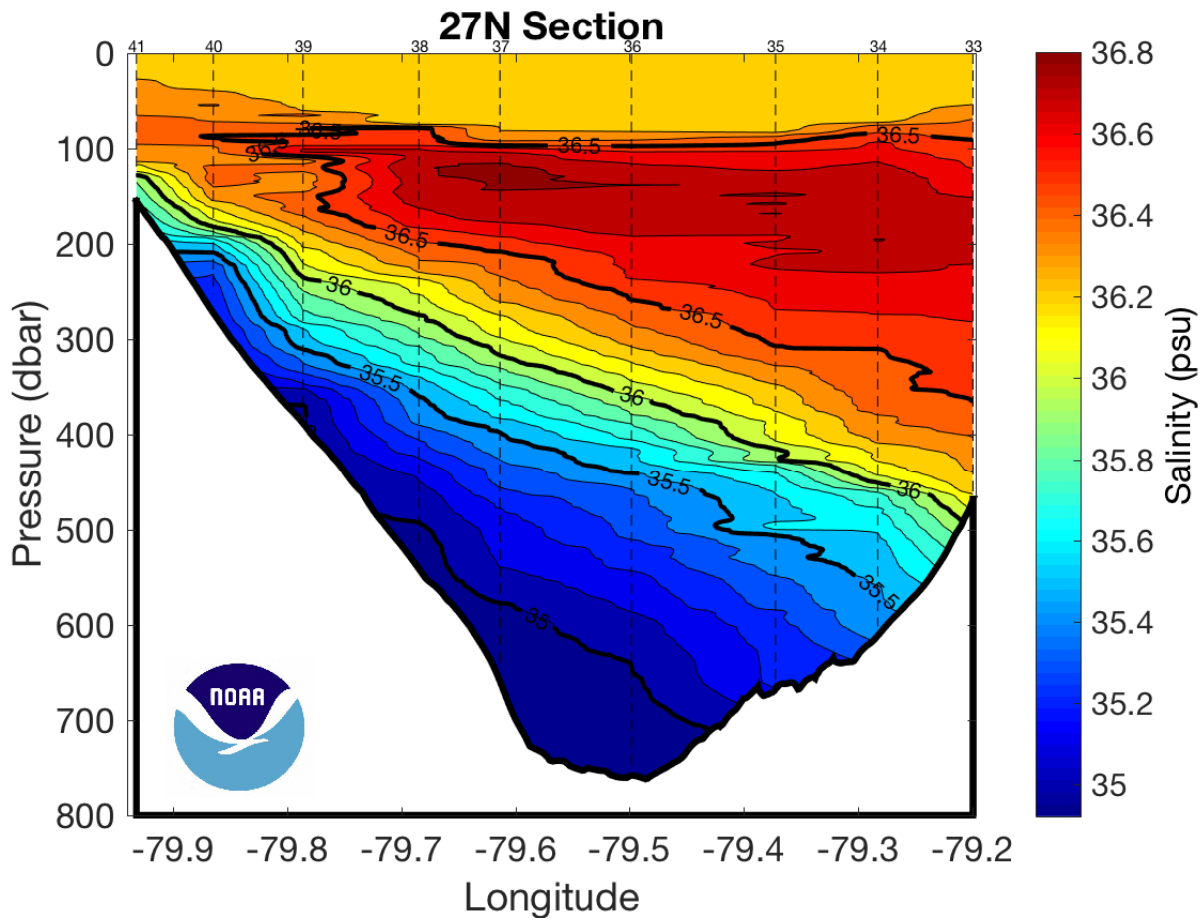


Figure 35: Salinity (PSS 78) section for the Florida Current North section. Dashed vertical lines are the CTD station locations.

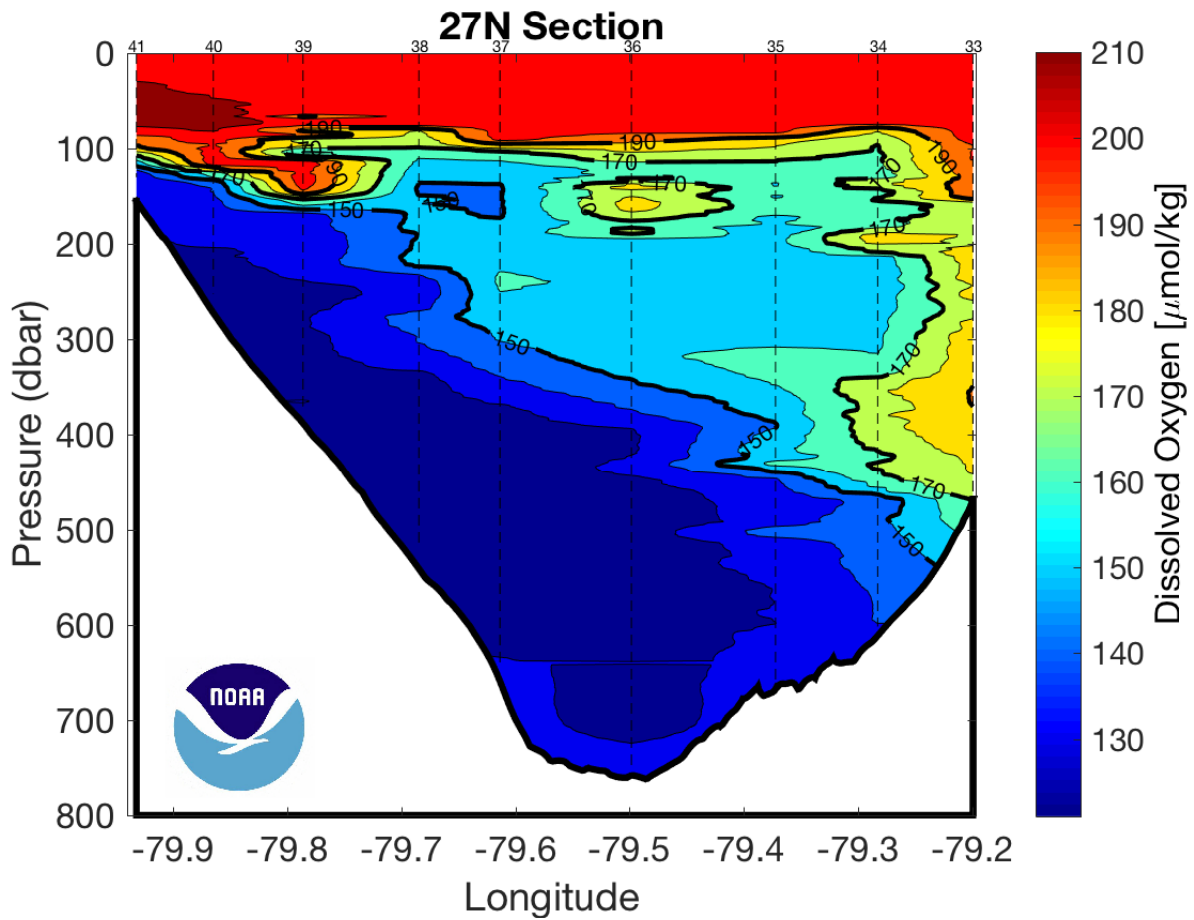


Figure 36: Dissolved Oxygen ( $\mu\text{mol/kg}$ ) section for the Florida Current North section. Dashed vertical lines are the CTD station locations.

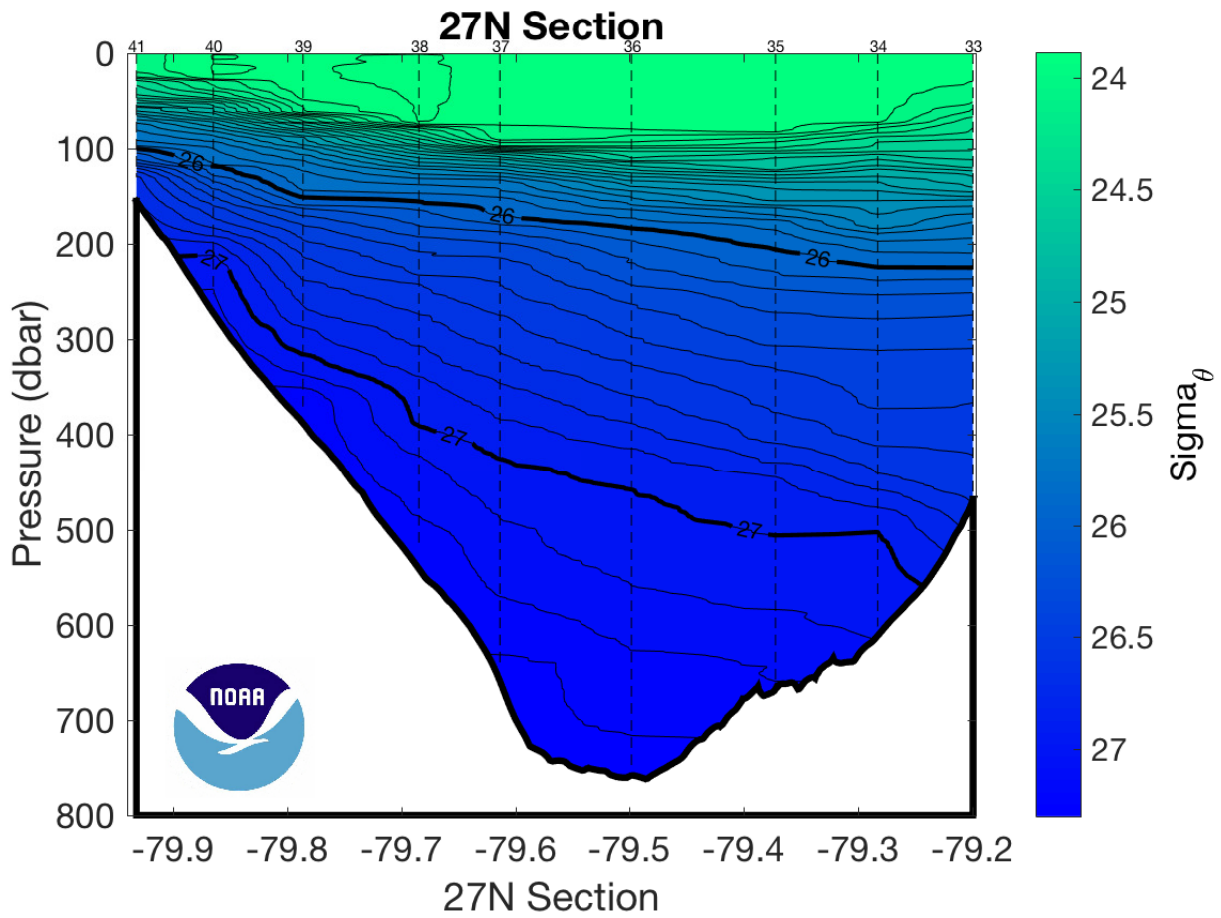


Figure 37: Neutral density (kg/m<sup>3</sup>) section for the Florida Current North section. Dashed vertical lines are the CTD station locations.

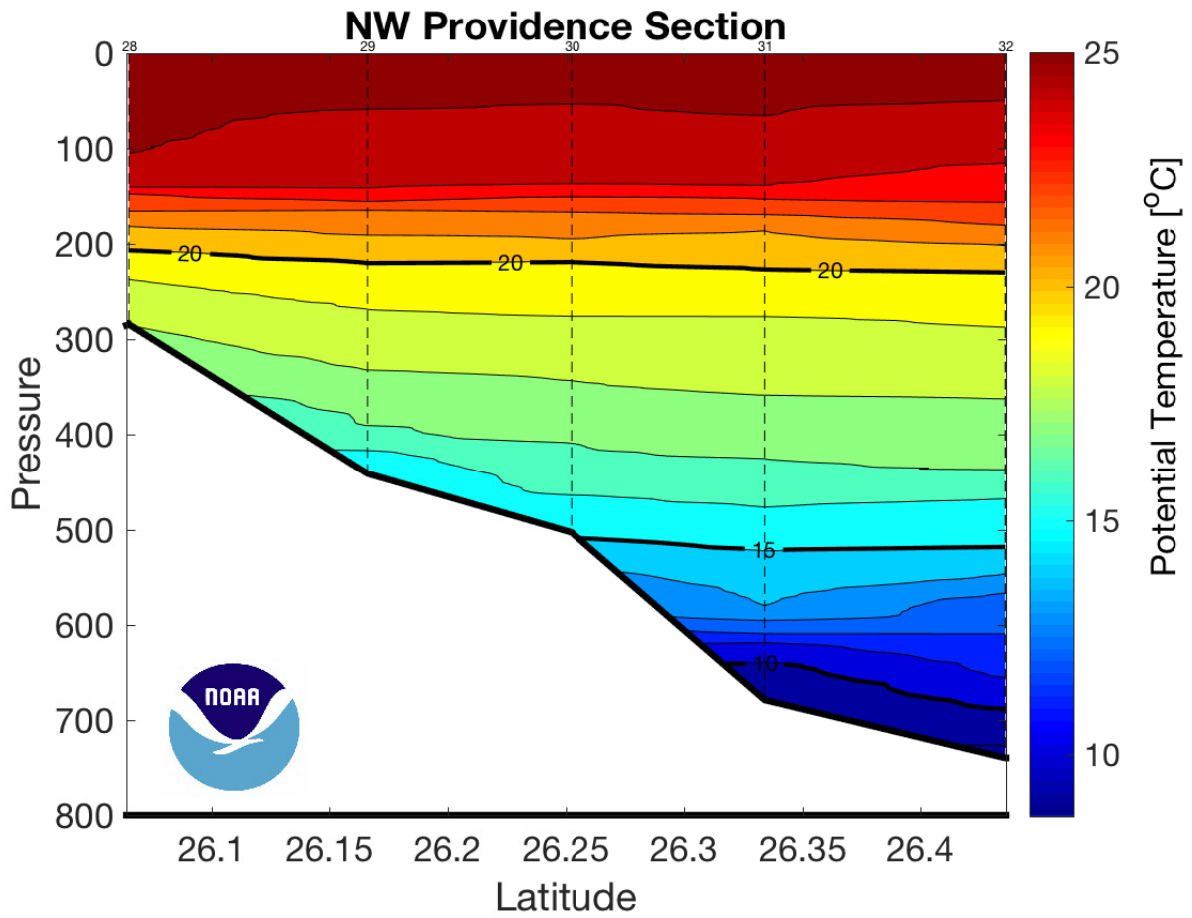


Figure 38: Potential Temperature (°C) section for the Northwest Providence Channel section. Dashed vertical lines are the CTD station locations.

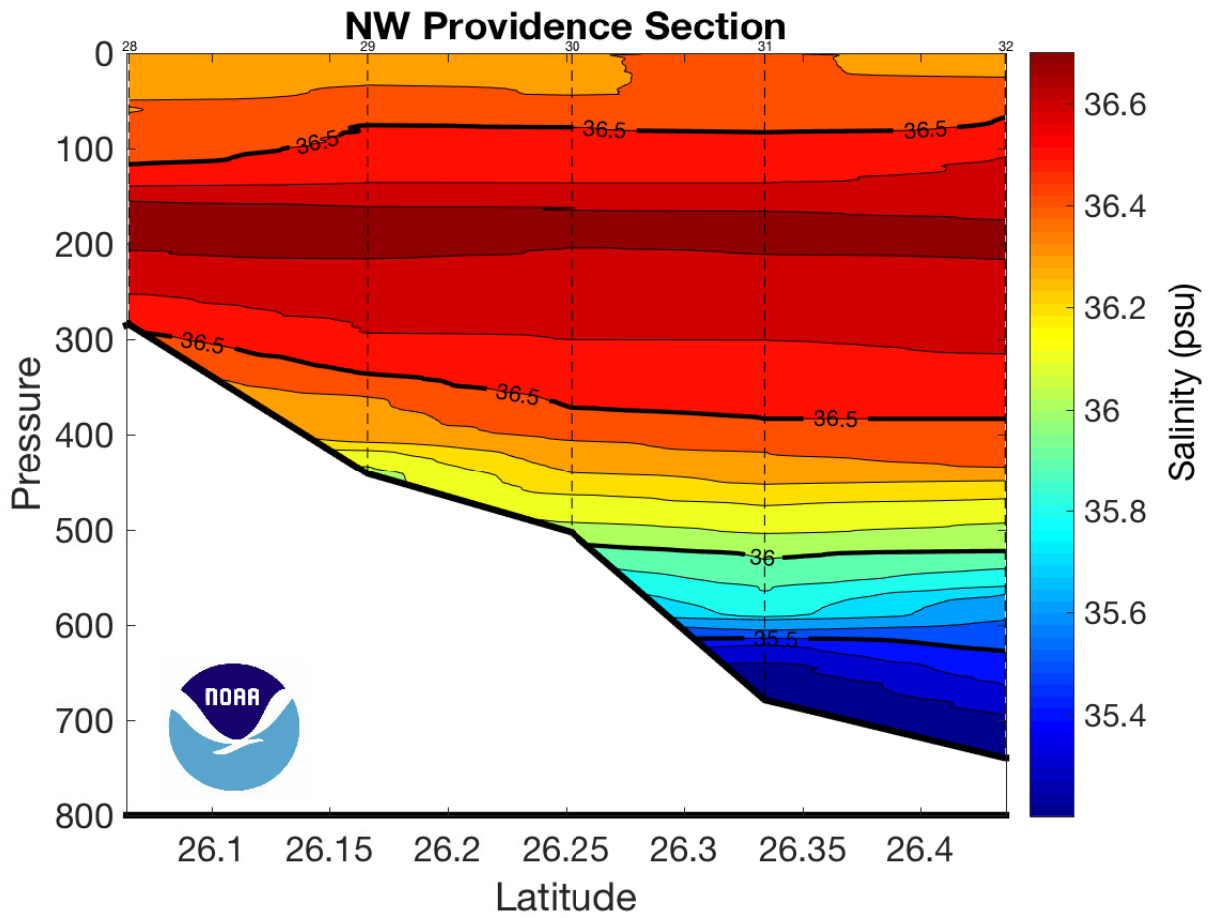


Figure 39: Salinity (PSS 78) section for the Northwest Providence Channel section. Dashed vertical lines are the CTD station locations.



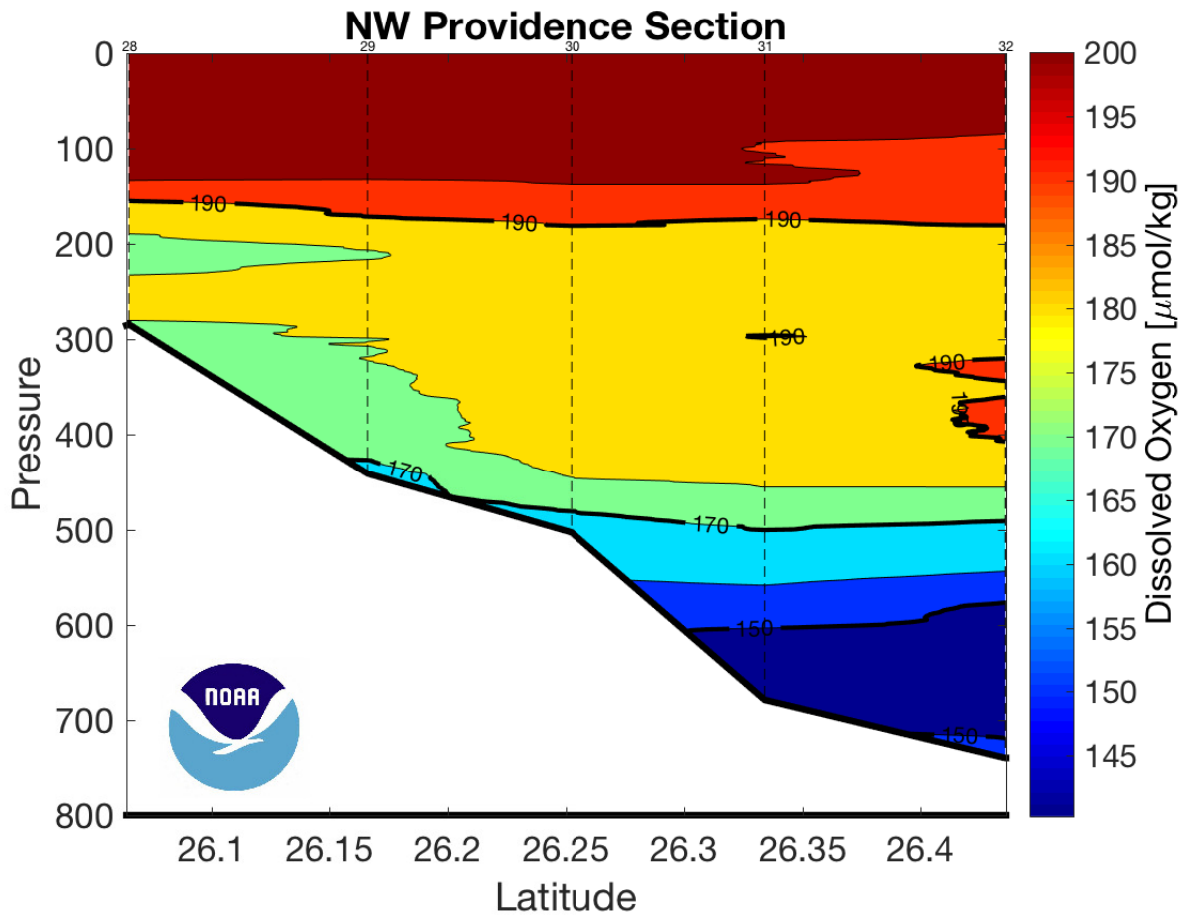


Figure 40: Dissolved Oxygen ( $\mu\text{mol/kg}$ ) section for the Northwest Providence Channel section. Dashed vertical lines are the CTD station locations.

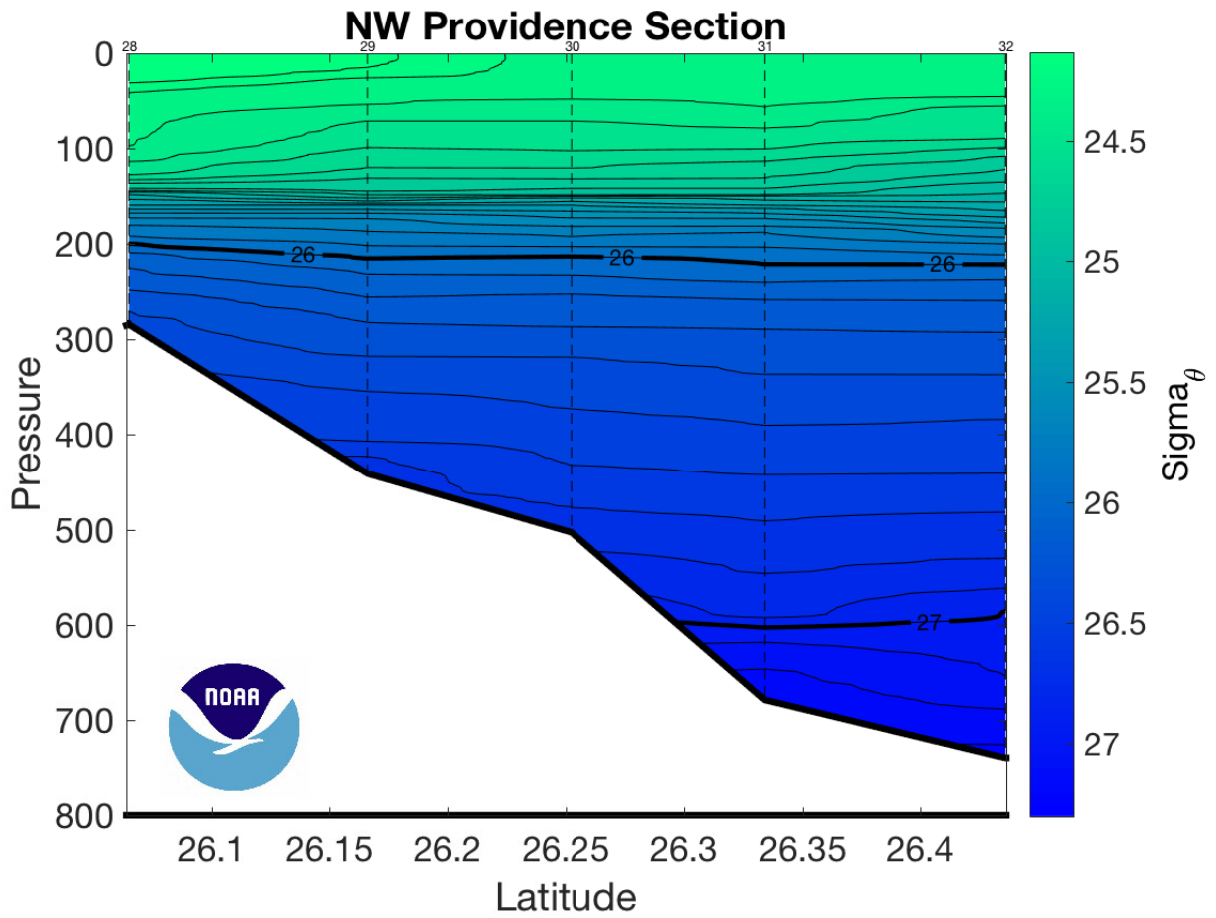


Figure 41: Neutral density ( $\text{kg}/\text{m}^3$ ) section for the Northwest Providence Channel section. Dashed vertical lines are the CTD station locations.

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## *10 Acknowledgements*

The successful completion of the cruise relied on dedicated assistance from many individuals on shore and on the UNOLS ship Endeavor. Funded investigators in the project and members of the Western Boundary Time Series, and the RAPID/MOC programs were instrumental in planning and executing the cruise. The participants in the cruise showed dedication and camaraderie during their 17 days at sea. Officers and crew of the Endeavor exhibited a high degree of professionalism and assistance to accomplish the mission and to make us feel at home during the voyage.

The U.S. Western Boundary Time Series Program is sponsored by NOAA's Office of Climate Observation. The U.S. Meridional Overturning Heat transport and Circulation Array is sponsored by the National Science Foundation's Physical Oceanography Program. The UK RAPID/MOC program is sponsored by the National Environmental Research Council (NERC). In particular, we wish to thank program managers Diane Stanitski (NOAA), David Legler (NOAA), Mike Johnson (NOAA), Eric Itsweire (NSF/OCE), and Meric Srokosz (NERC) for their financial support in the effort.

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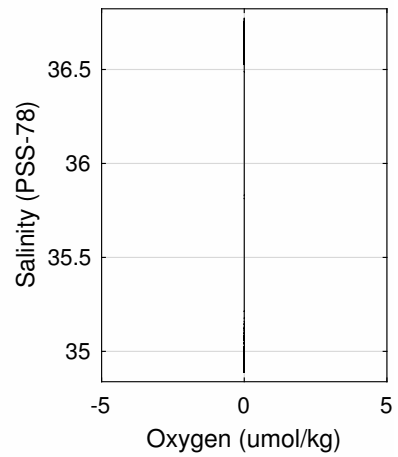
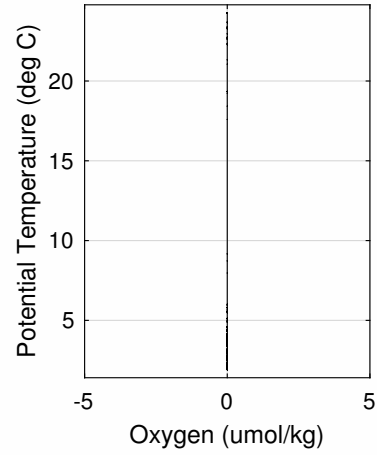
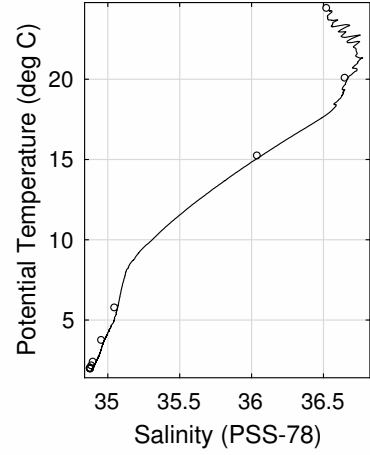
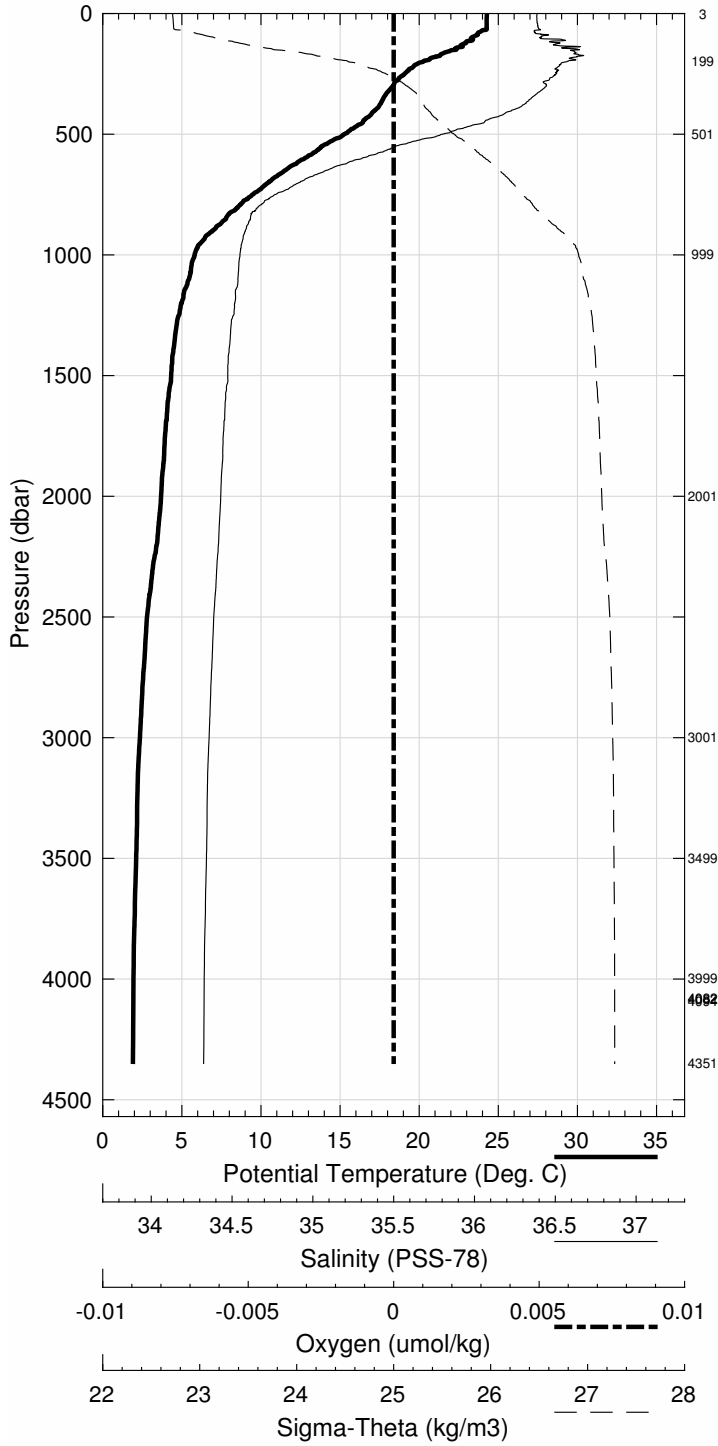
## *A Hydrographic - CTD Data*

Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 1 (CTD001)  
 Latitude 25.953N Longitude 76.923W  
 16-Mar-2014 14:17Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$	DynHt $\text{m}^2\cdot\text{s}^{-2}$	SigT $\text{kg}\cdot\text{m}^{-3}$
1	24.275	24.275	36.542	0.0	0.003	24.727
10	24.273	24.271	36.540	0.0	0.032	24.727
20	24.269	24.265	36.541	0.0	0.064	24.729
30	24.269	24.262	36.541	0.0	0.096	24.730
50	24.274	24.264	36.545	0.0	0.161	24.733
75	23.902	23.886	36.529	0.0	0.241	24.833
100	23.322	23.302	36.554	0.0	0.317	25.024
125	22.851	22.825	36.641	0.0	0.389	25.230
150	22.377	22.347	36.752	0.0	0.456	25.451
200	20.287	20.250	36.688	0.0	0.571	25.984
250	19.124	19.079	36.637	0.0	0.668	26.253
300	18.393	18.340	36.587	0.0	0.758	26.403
400	17.271	17.203	36.418	0.0	0.924	26.555
500	15.336	15.258	36.073	0.0	1.079	26.742
600	12.842	12.758	35.674	0.0	1.215	26.964
700	10.567	10.480	35.363	0.0	1.330	27.152
800	8.649	8.561	35.159	0.0	1.430	27.313
900	7.025	6.936	35.095	0.0	1.512	27.503
1000	5.897	5.806	35.069	0.0	1.577	27.632
1100	5.555	5.457	35.058	0.0	1.635	27.667
1200	5.080	4.976	35.042	0.0	1.689	27.712
1300	4.760	4.650	35.024	0.0	1.741	27.734
1400	4.577	4.460	35.015	0.0	1.791	27.749
1500	4.450	4.325	35.008	0.0	1.841	27.758
1750	4.081	3.936	34.986	0.0	1.964	27.782
2000	3.850	3.685	34.973	0.0	2.086	27.797
2500	2.994	2.794	34.939	0.0	2.317	27.855
3000	2.595	2.353	34.916	0.0	2.528	27.875
3500	2.403	2.113	34.903	0.0	2.735	27.885
4000	2.282	1.940	34.891	0.0	2.948	27.889

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$
4351	2	2.289	1.906	34.884	-999.0
4082	4	2.285	1.934	34.884	-999.0
4083	6	2.285	1.934	34.885	-999.0
4095	8	2.286	1.933	34.882	-999.0
4000	10	2.283	1.941	34.882	-999.0
3499	12	2.397	2.107	34.892	-999.0
3001	13	2.585	2.343	34.902	-999.0
2001	15	3.859	3.694	34.960	-999.0
1000	17	5.808	5.717	35.052	-999.0
501	19	15.264	15.186	36.044	-999.0
200	21	20.064	20.026	36.655	-999.0
4	23	24.376	24.375	36.527	-999.0

Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 1 (CTD001)  
 Latitude 25.953 N Longitude 76.923 W  
 16-Mar-2014 14:17 Z



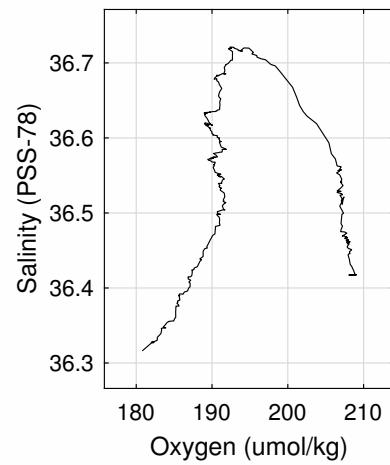
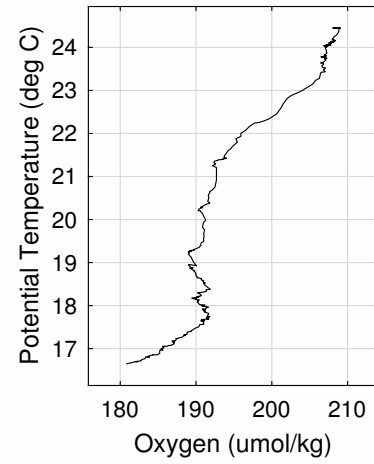
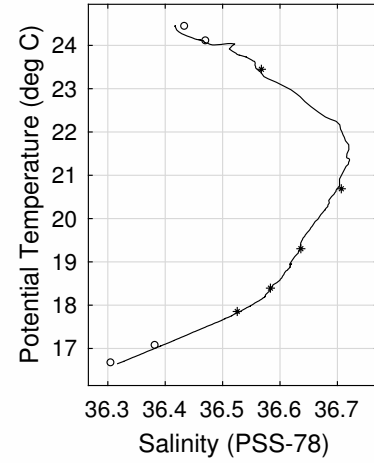
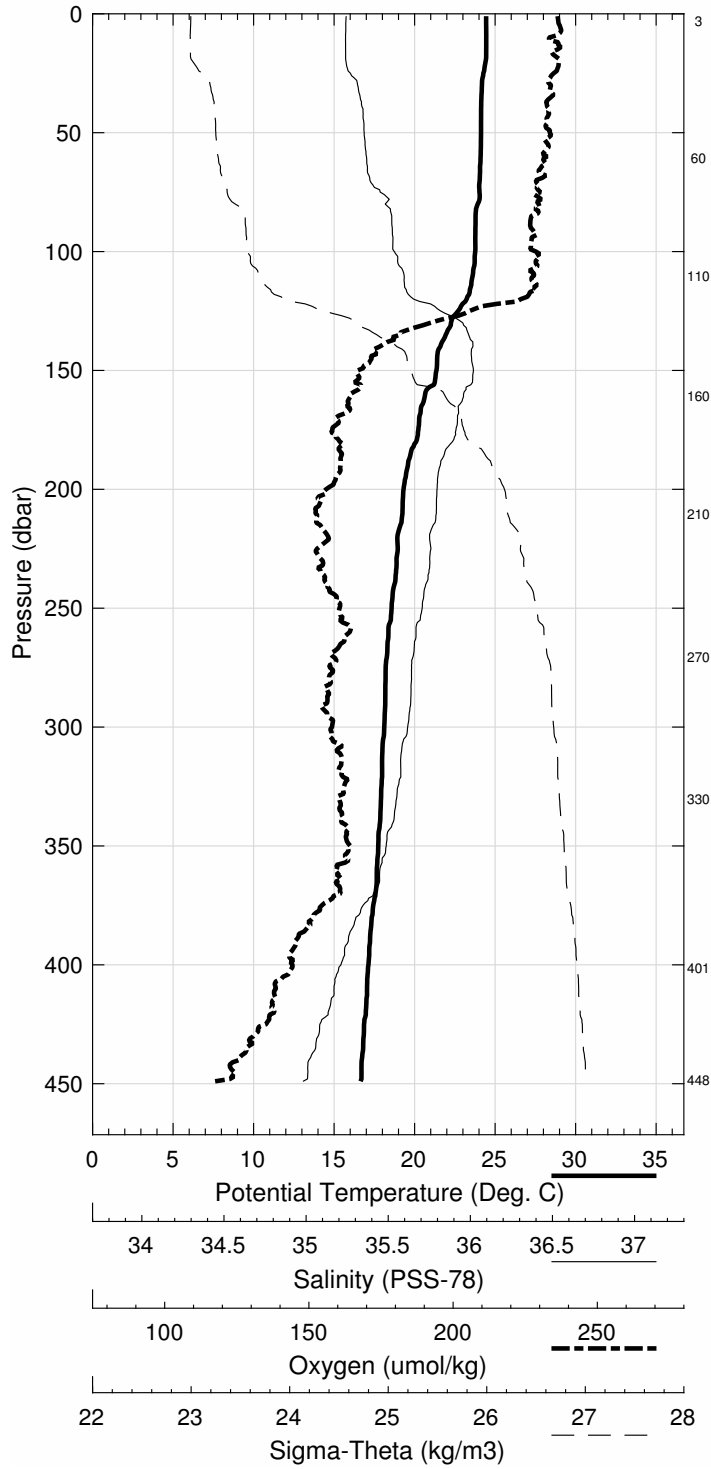
Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 2 (CTD002)  
 Latitude 26.529N Longitude 76.882W  
 16-Mar-2014 23:17Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$	DynHt $\text{m}^2\cdot\text{s}^{-2}$	SigT $\text{kg}\cdot\text{m}^{-3}$
1	24.442	24.442	36.419	208.7	0.003	24.583
10	24.450	24.448	36.417	208.0	0.033	24.580
20	24.414	24.410	36.418	208.9	0.067	24.593
30	24.188	24.181	36.446	208.2	0.100	24.682
50	24.134	24.124	36.462	208.1	0.165	24.712
75	24.042	24.026	36.500	207.4	0.246	24.769
100	23.783	23.762	36.533	207.0	0.324	24.873
125	22.727	22.702	36.643	201.5	0.399	25.267
150	21.384	21.355	36.721	192.4	0.461	25.707
200	19.349	19.312	36.635	189.8	0.565	26.190
250	18.615	18.570	36.599	190.9	0.656	26.354
300	18.167	18.114	36.565	190.3	0.742	26.443
400	17.200	17.133	36.406	187.1	0.907	26.562

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$
449	1	16.728	16.654	36.307	-999.0
401	2	17.124	17.057	36.384	-999.0
330	3	17.912	17.854	36.525	-999.0
271	4	18.441	18.393	36.583	-999.0
211	5	19.342	19.304	36.636	-999.0
161	6	20.719	20.689	36.707	-999.0
110	7	23.471	23.448	36.568	-999.0
61	8	24.104	24.091	36.472	-999.0
3	9	24.426	24.425	36.435	-999.0



Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 2 (CTD002)  
 Latitude 26.529 N Longitude 76.882 W  
 16-Mar-2014 23:17 Z

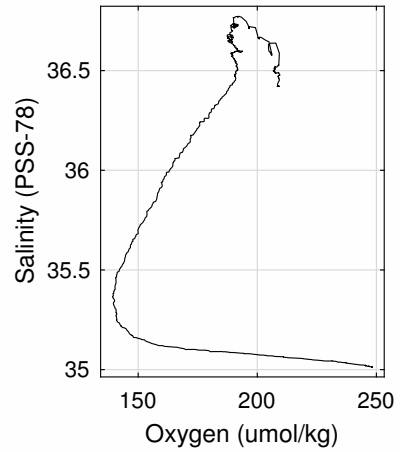
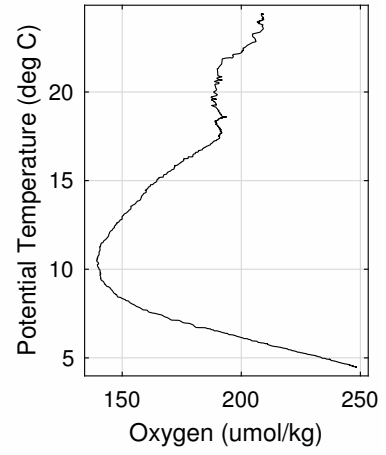
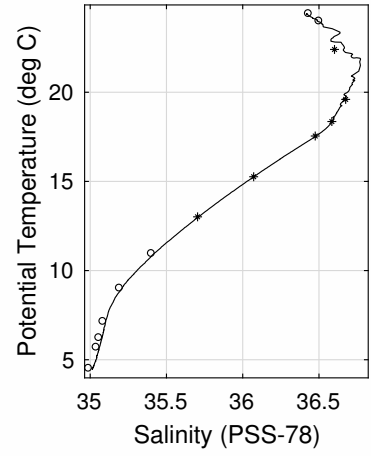
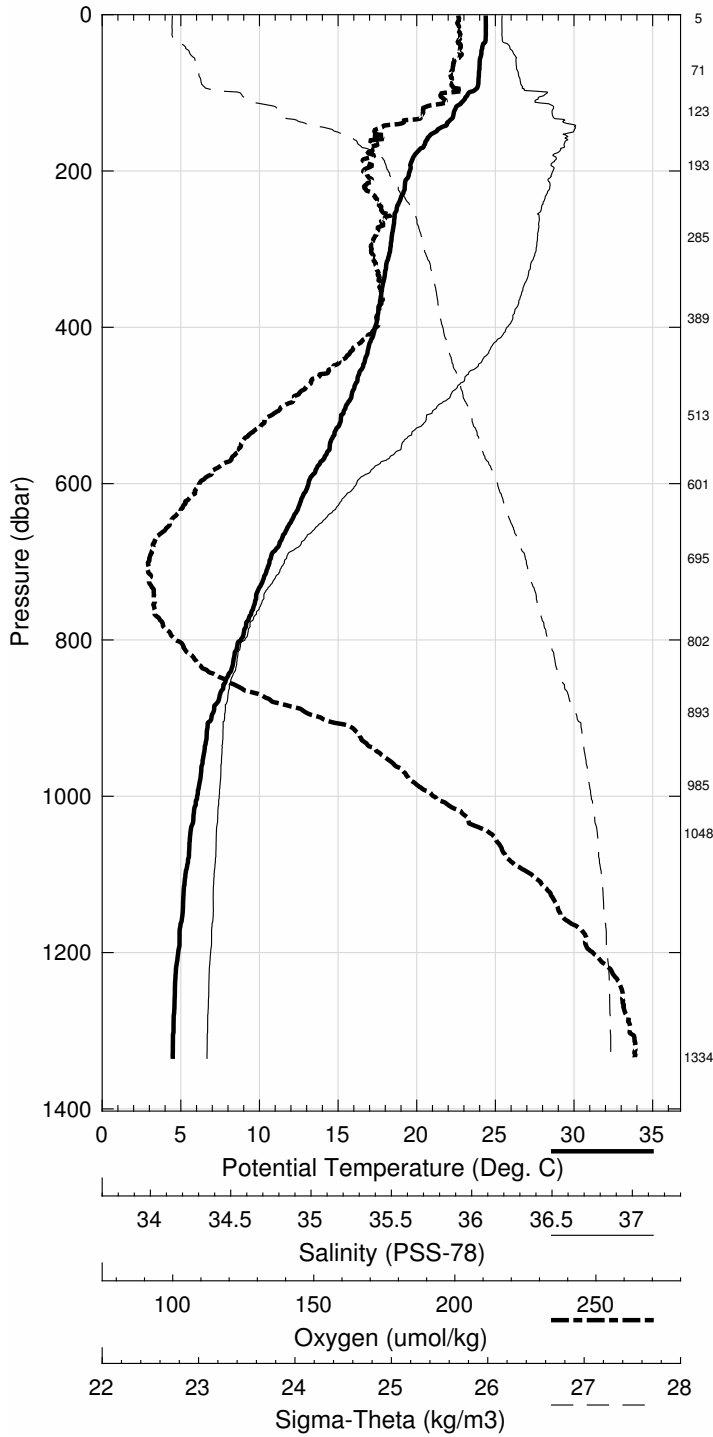


Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 3 (CTD003)  
 Latitude 26.521N Longitude 76.823W  
 17-Mar-2014 00:53Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$	DynHt $\text{m}^2\cdot\text{s}^{-2}$	SigT $\text{kg}\cdot\text{m}^{-3}$
1	24.389	24.389	36.422	208.7	0.003	24.602
10	24.392	24.390	36.420	208.4	0.033	24.600
20	24.396	24.392	36.421	208.3	0.067	24.600
30	24.387	24.381	36.422	208.7	0.100	24.604
50	24.117	24.106	36.476	209.4	0.166	24.728
75	23.968	23.952	36.499	206.6	0.246	24.791
100	23.323	23.302	36.637	205.6	0.324	25.088
125	22.385	22.359	36.660	200.9	0.393	25.377
150	21.218	21.189	36.762	190.0	0.455	25.784
200	19.594	19.557	36.664	187.4	0.558	26.149
250	18.761	18.717	36.608	191.5	0.651	26.324
300	18.367	18.314	36.584	189.3	0.739	26.407
400	17.414	17.346	36.445	190.3	0.906	26.540
500	15.599	15.520	36.116	169.9	1.063	26.716
600	13.198	13.113	35.726	150.9	1.202	26.933
700	10.723	10.635	35.382	139.5	1.322	27.139
800	8.921	8.831	35.195	145.6	1.423	27.298
900	7.027	6.938	35.097	178.2	1.507	27.504
1000	6.133	6.040	35.072	203.2	1.574	27.604
1100	5.389	5.292	35.047	225.0	1.632	27.678
1200	4.940	4.837	35.031	238.7	1.686	27.719
1300	4.644	4.535	35.016	247.0	1.736	27.741

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$
1334	1	4.600	4.488	34.993	-999.0
1048	2	5.765	5.670	35.042	-999.0
986	3	6.298	6.205	35.060	-999.0
893	4	7.206	7.117	35.087	-999.0
802	5	9.076	8.985	35.195	-999.0
695	6	11.012	10.924	35.405	-999.0
601	7	13.099	13.014	35.704	-999.0
513	8	15.342	15.261	36.072	-999.0
389	9	17.613	17.546	36.475	-999.0
285	10	18.408	18.358	36.584	-999.0
193	11	19.635	19.599	36.675	-999.0
124	12	22.425	22.400	36.602	-999.0
71	13	23.977	23.962	36.503	-999.0
5	14	24.379	24.378	36.434	-999.0

Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 3 (CTD003)  
 Latitude 26.521 N Longitude 76.823 W  
 17-Mar-2014 00:53 Z

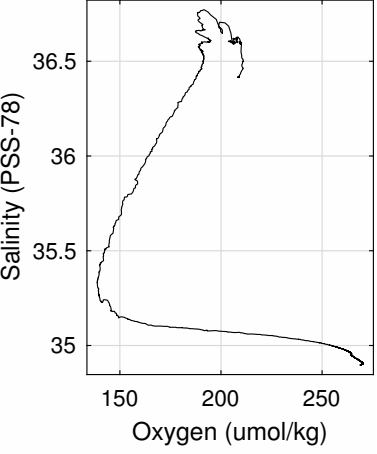
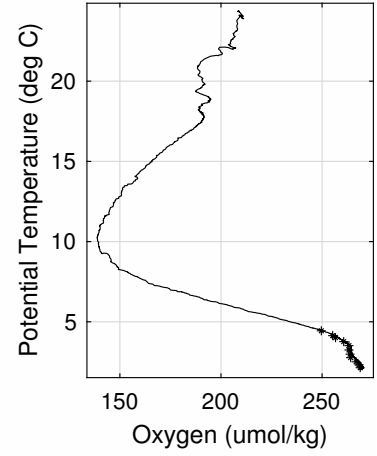
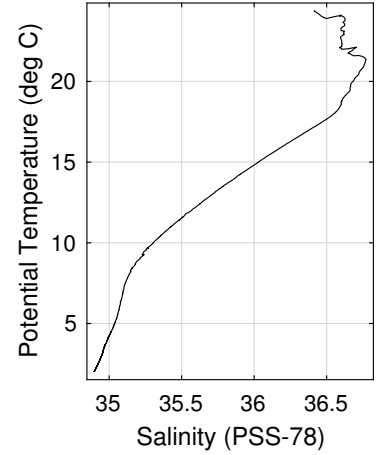
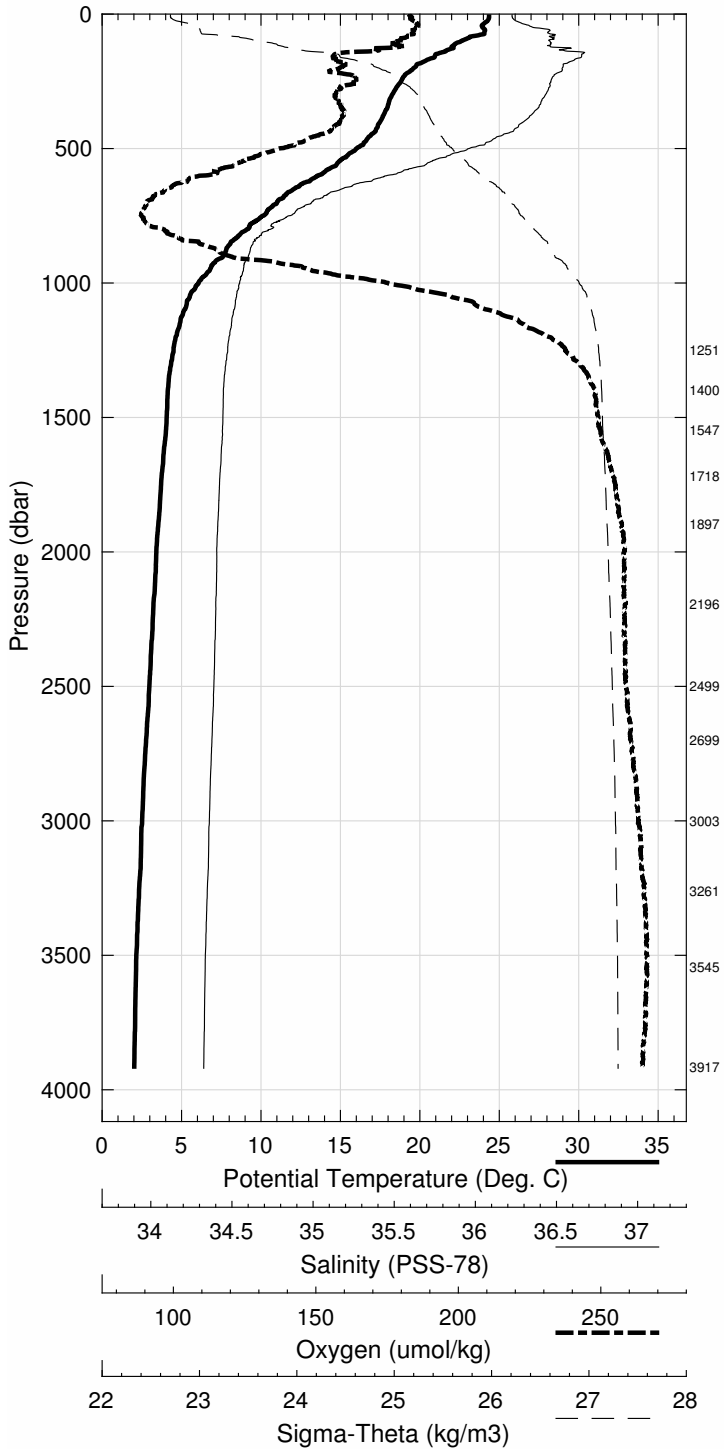


Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 4 (CTD004)  
 Latitude 26.503N Longitude 76.745W  
 17-Mar-2014 03:20Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$	DynHt $\text{m}^2\cdot\text{s}^{-2}$	SigT $\text{kg}\cdot\text{m}^{-3}$
1	24.358	24.358	36.416	208.4	0.003	24.607
10	24.356	24.354	36.416	209.1	0.033	24.608
20	24.320	24.316	36.423	208.9	0.066	24.625
30	24.156	24.149	36.450	210.2	0.099	24.695
50	23.955	23.945	36.521	210.2	0.163	24.810
75	24.008	23.992	36.618	209.2	0.241	24.869
100	22.623	22.603	36.600	206.0	0.313	25.263
125	22.113	22.088	36.685	203.8	0.379	25.474
150	21.009	20.980	36.757	189.0	0.439	25.838
200	19.660	19.623	36.662	190.7	0.544	26.130
250	18.857	18.812	36.606	194.5	0.637	26.298
300	18.303	18.250	36.579	189.1	0.725	26.419
400	17.571	17.503	36.472	190.4	0.893	26.523
500	16.093	16.012	36.202	174.6	1.053	26.670
600	13.676	13.589	35.800	155.6	1.197	26.892
700	11.097	11.008	35.428	140.3	1.319	27.108
800	9.247	9.155	35.227	144.6	1.424	27.271
900	7.700	7.607	35.116	161.9	1.511	27.424
1000	6.162	6.069	35.073	203.0	1.583	27.602
1100	5.259	5.163	35.045	229.1	1.640	27.692
1200	4.732	4.632	35.021	244.6	1.692	27.735
1300	4.449	4.343	35.006	252.7	1.740	27.754
1400	4.247	4.133	34.993	256.7	1.788	27.767
1500	4.185	4.062	34.991	257.5	1.835	27.773
1750	3.853	3.711	34.974	261.9	1.953	27.796
2000	3.573	3.412	34.961	264.3	2.069	27.815
2500	3.175	2.972	34.946	264.7	2.296	27.845
3000	2.763	2.518	34.924	268.0	2.516	27.868
3500	2.441	2.150	34.905	270.2	2.732	27.883

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$
3918	1	2.358	7.927	-999.000	-999.0
3545	2	2.431	7.572	-999.000	-999.0
3261	3	2.590	7.376	-999.000	-999.0
3003	4	2.747	7.202	-999.000	-999.0
2700	5	2.987	7.036	-999.000	-999.0
2499	6	3.187	6.958	-999.000	-999.0
2196	7	3.424	6.774	-999.000	-999.0
1898	8	3.666	6.592	-999.000	-999.0
1718	9	3.907	6.565	-999.000	-999.0
1548	10	4.132	6.536	-999.000	-999.0
1400	11	4.252	6.438	-999.000	-999.0
1251	12	4.551	6.504	-999.000	-999.0

Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 4 (CTD004)  
 Latitude 26.503 N Longitude 76.745 W  
 17-Mar-2014 03:20 Z

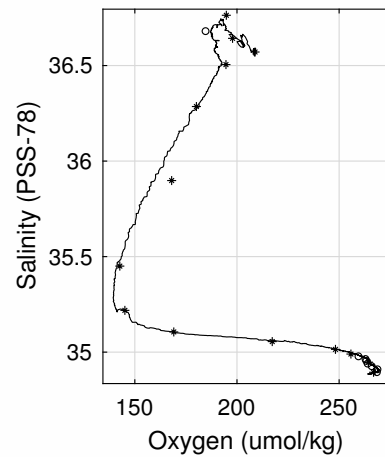
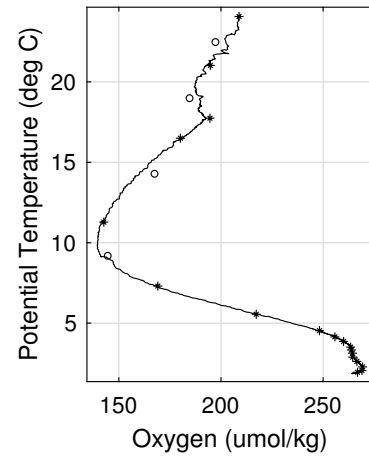
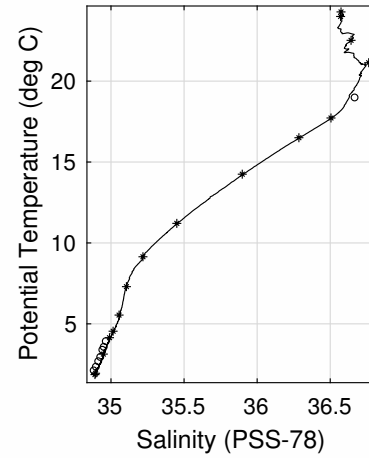
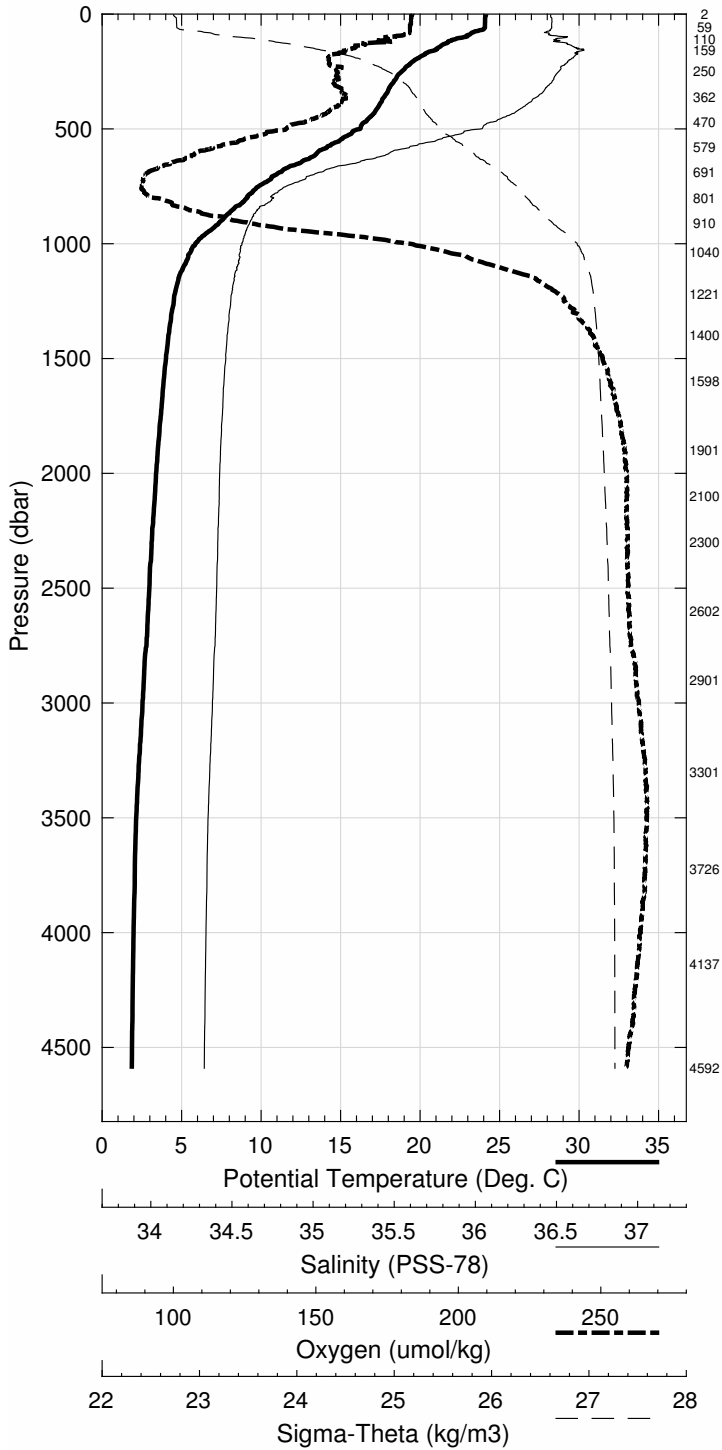


Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 5 (CTD005)  
 Latitude 26.506N Longitude 76.655W  
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Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$	DynHt $\text{m}^2\cdot\text{s}^{-2}$	SigT $\text{kg}\cdot\text{m}^{-3}$
1	24.143	24.143	36.582	209.2	0.003	24.797
10	24.120	24.118	36.581	208.6	0.031	24.804
20	24.094	24.090	36.587	209.1	0.063	24.817
30	24.093	24.086	36.587	208.8	0.094	24.818
50	24.091	24.080	36.586	208.8	0.157	24.819
75	23.480	23.465	36.564	208.0	0.235	24.984
100	22.783	22.763	36.648	202.5	0.307	25.252
125	21.753	21.728	36.653	198.7	0.372	25.551
150	21.087	21.058	36.717	193.4	0.431	25.786
200	19.684	19.647	36.671	187.3	0.535	26.131
250	18.902	18.857	36.621	189.9	0.629	26.298
300	18.351	18.298	36.584	188.9	0.717	26.411
400	17.478	17.409	36.456	190.1	0.884	26.533
500	16.304	16.222	36.240	176.7	1.044	26.650
600	13.666	13.579	35.800	153.9	1.188	26.894
700	11.003	10.915	35.416	140.3	1.311	27.115
800	9.221	9.130	35.224	142.5	1.414	27.273
900	7.587	7.495	35.112	164.0	1.503	27.437
1000	5.946	5.855	35.070	208.5	1.572	27.626
1100	5.214	5.119	35.046	231.0	1.629	27.698
1200	4.742	4.642	35.025	245.0	1.680	27.736
1300	4.479	4.372	35.008	250.5	1.728	27.753
1400	4.280	4.166	34.997	255.5	1.776	27.766
1500	4.137	4.015	34.991	258.1	1.824	27.777
1750	3.831	3.690	34.974	262.3	1.940	27.797
2000	3.556	3.395	34.961	264.2	2.055	27.816
2500	3.174	2.970	34.946	264.6	2.281	27.845
3000	2.787	2.541	34.925	267.5	2.502	27.867
3500	2.434	2.143	34.904	269.4	2.718	27.883
4000	2.320	1.977	34.894	267.7	2.933	27.889
4500	2.279	1.878	34.886	264.7	3.157	27.890

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$
4593	1	2.277	1.865	34.890	-999.0
4138	2	2.305	1.946	34.895	266.8
3726	3	2.367	2.053	34.889	269.0
3301	4	2.555	2.283	34.904	269.3
2901	5	2.857	2.620	34.920	266.5
2603	6	3.097	2.885	34.934	264.5
2301	7	3.317	3.131	34.948	264.3
2100	8	3.497	3.327	34.949	263.8
1902	9	3.661	3.508	34.958	263.5
1599	10	3.990	3.861	34.972	260.0
1401	11	4.258	4.144	34.990	255.8
1221	12	4.646	4.545	35.014	248.2
1040	13	5.635	5.542	35.055	217.3
911	14	7.391	7.298	35.106	169.1
801	15	9.237	9.145	35.219	145.1
691	16	11.298	11.209	35.450	142.7
579	17	14.336	14.249	35.898	168.0
471	18	16.580	16.502	36.286	180.1
362	19	17.785	17.722	36.505	194.6
250	20	18.966	18.921	36.674	185.2
160	21	21.170	21.139	36.763	194.8
111	22	22.544	22.521	36.642	197.8
60	23	24.008	23.995	36.571	208.8
2	24	24.278	24.277	36.574	-999.0

Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 5 (CTD005)  
 Latitude 26.506 N Longitude 76.655 W  
 17-Mar-2014 15:36 Z



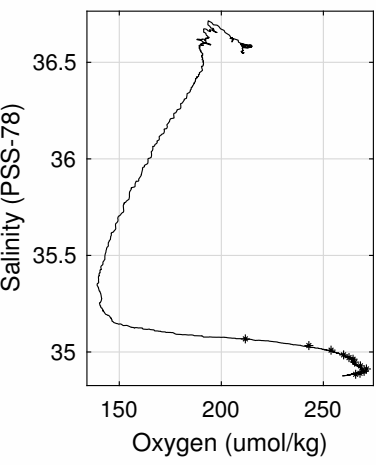
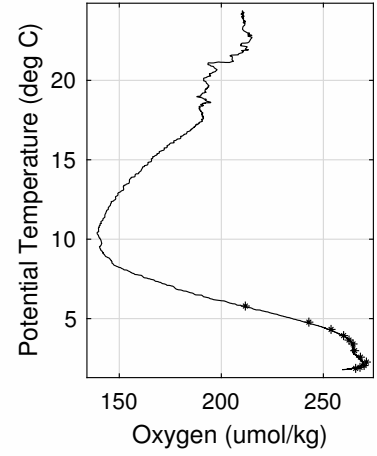
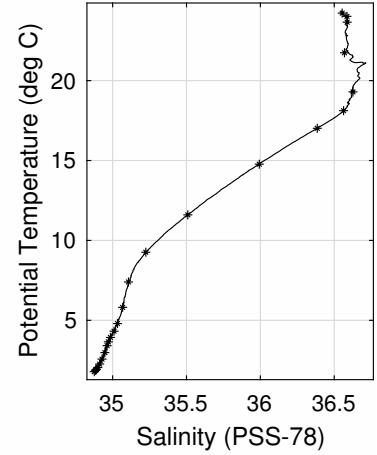
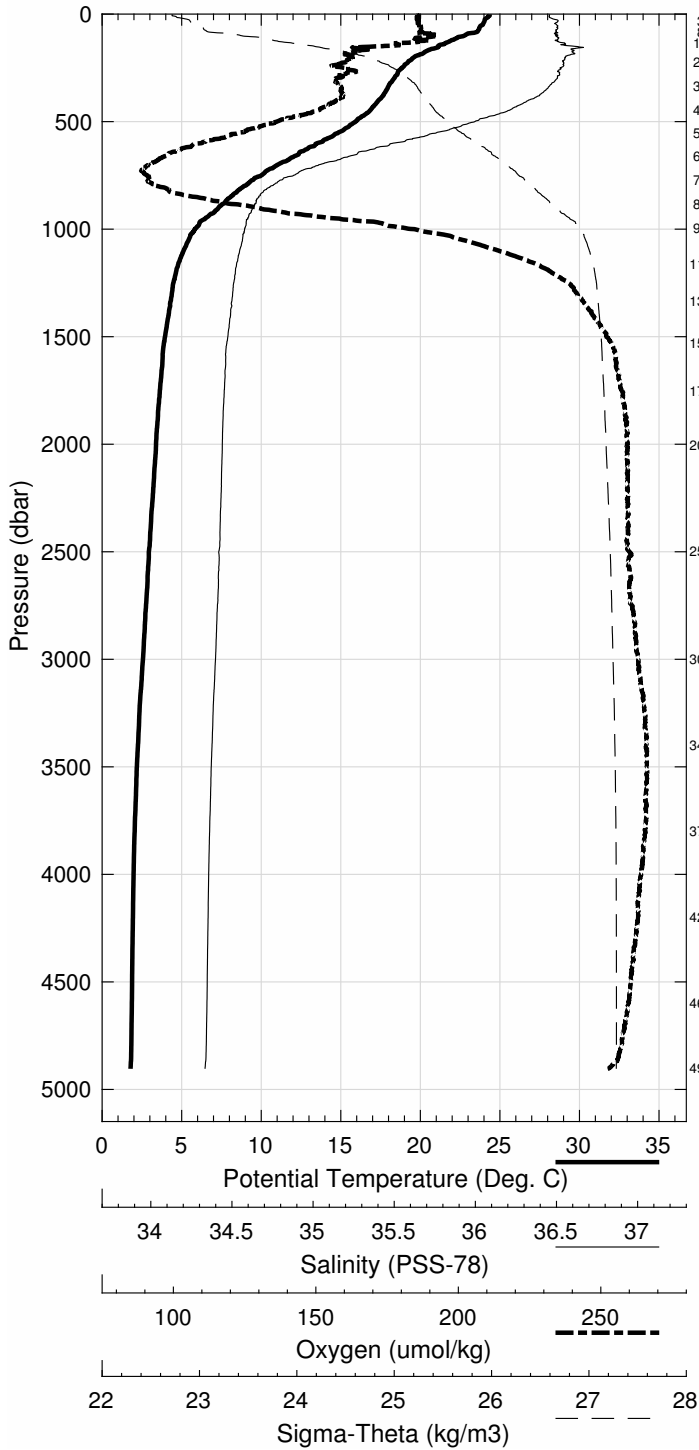
Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 6 (CTD006)  
 Latitude 26.502N Longitude 76.550W  
 17-Mar-2014 20:25Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$	DynHt $\text{m}^2\cdot\text{s}^{-2}$	SigT $\text{kg}\cdot\text{m}^{-3}$
1	24.355	24.355	36.551	210.2	0.003	24.710
10	24.286	24.284	36.548	210.5	0.032	24.728
20	24.130	24.125	36.561	210.8	0.064	24.786
30	24.046	24.040	36.592	211.1	0.095	24.835
50	23.926	23.915	36.585	210.7	0.158	24.867
75	23.652	23.637	36.580	210.7	0.234	24.946
100	22.787	22.766	36.581	213.7	0.307	25.201
125	21.901	21.876	36.592	209.9	0.373	25.463
150	21.170	21.141	36.674	199.6	0.434	25.730
200	19.652	19.615	36.626	193.6	0.541	26.104
250	18.872	18.827	36.602	191.6	0.635	26.291
300	18.398	18.345	36.587	189.1	0.724	26.401
400	17.437	17.369	36.448	189.5	0.892	26.537
500	16.009	15.929	36.186	174.1	1.051	26.677
600	13.602	13.515	35.790	154.7	1.195	26.900
700	11.129	11.040	35.432	141.1	1.317	27.105
800	8.993	8.903	35.195	143.4	1.421	27.286
900	7.412	7.320	35.108	169.2	1.507	27.459
1000	5.934	5.843	35.069	209.6	1.575	27.627
1100	5.217	5.122	35.044	231.2	1.632	27.696
1200	4.741	4.640	35.023	244.7	1.683	27.735
1300	4.487	4.380	35.010	251.4	1.731	27.754
1400	4.294	4.179	35.000	255.4	1.779	27.767
1500	4.075	3.953	34.987	258.9	1.826	27.781
1750	3.768	3.628	34.969	262.9	1.941	27.800
2000	3.548	3.387	34.960	264.2	2.055	27.816
2500	3.139	2.936	34.943	264.8	2.281	27.846
3000	2.813	2.566	34.927	267.1	2.503	27.866
3500	2.475	2.183	34.906	269.4	2.720	27.882
4000	2.320	1.977	34.894	267.8	2.936	27.889
4500	2.283	1.882	34.887	265.1	3.160	27.890

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$
4903	1	2.233	1.785	34.876	-999.0
4601	2	2.280	1.868	34.885	265.8
4201	3	2.299	1.933	34.890	267.9
3800	4	2.369	2.047	34.900	270.0
3401	5	2.546	2.263	34.912	271.1
3001	6	2.819	2.572	34.928	268.2
2500	7	3.180	2.977	34.947	265.3
2005	8	3.573	3.411	34.963	264.5
1753	9	3.793	3.652	34.971	262.6
1532	10	4.051	3.928	34.985	259.9
1337	11	4.431	4.321	35.009	253.8
1166	12	4.894	4.796	35.033	242.9
995	13	5.902	5.811	35.068	211.8
886	14	7.490	7.399	35.107	-999.0
775	15	9.351	9.262	35.225	-999.0
663	16	11.687	11.599	35.509	-999.0
556	17	14.856	14.770	35.993	-999.0
449	18	17.092	17.016	36.385	-999.0
336	19	18.177	18.118	36.563	-999.0
226	20	19.337	19.296	36.627	-999.0
135	21	21.770	21.743	36.569	-999.0
86	22	23.675	23.657	36.588	-999.0
35	23	24.031	24.023	36.586	-999.0
5	24	24.227	24.226	36.554	-999.0



Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 6 (CTD006)  
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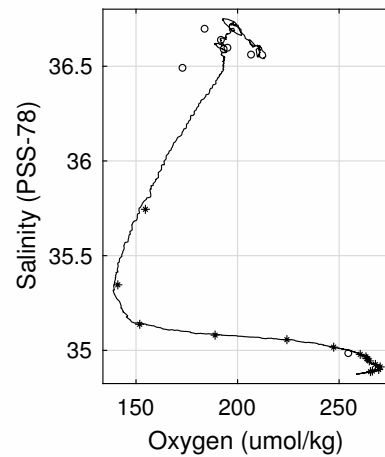
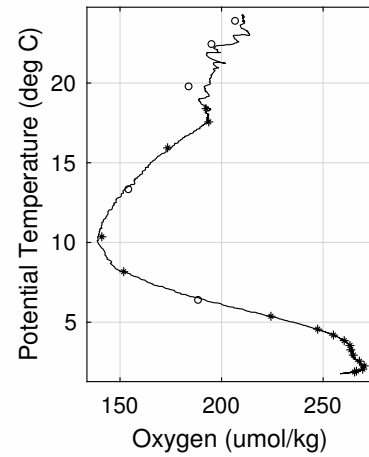
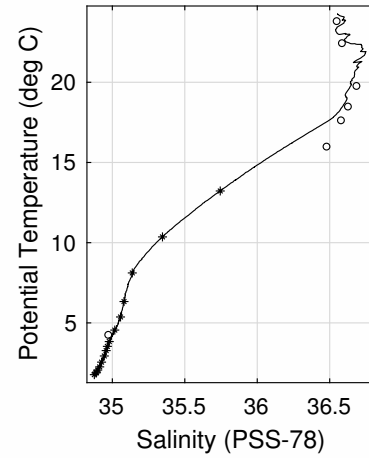
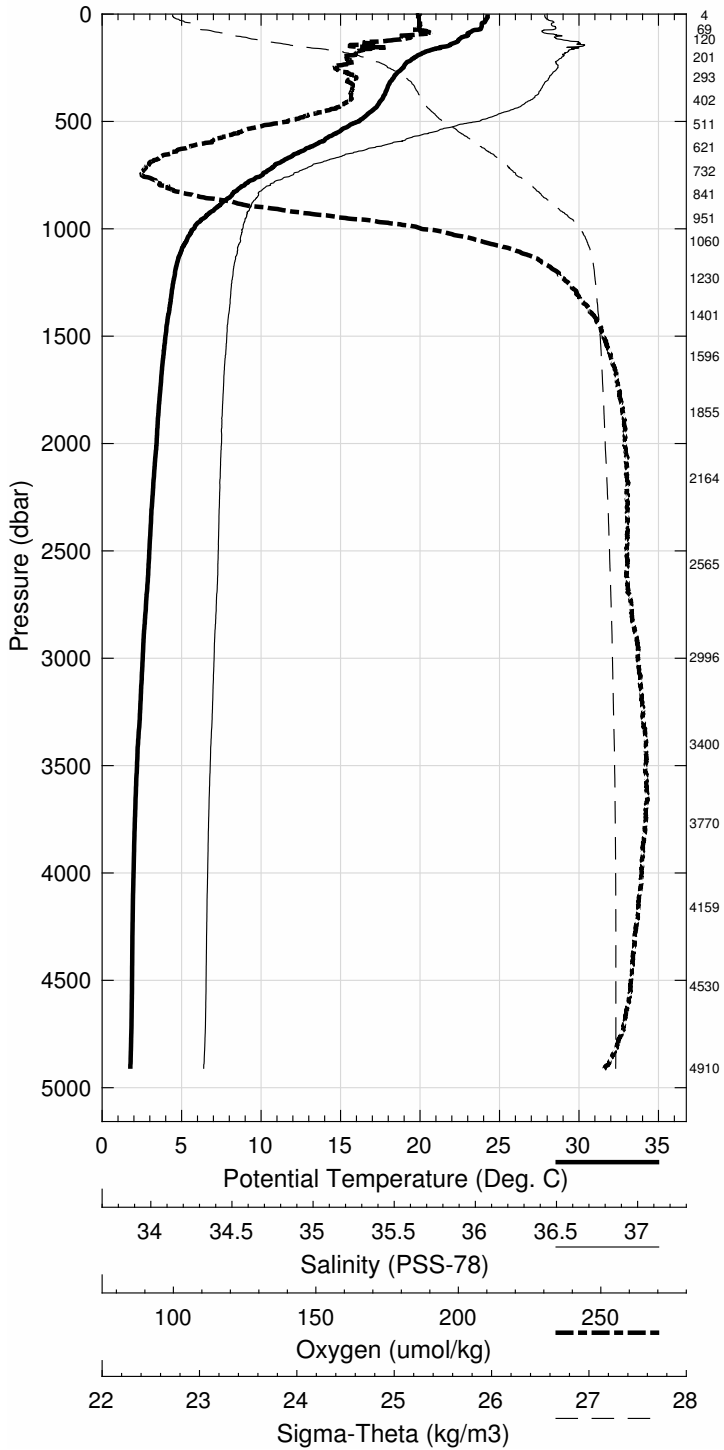


Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 7 (CTD007)  
 Latitude 26.500N Longitude 76.474W  
 18-Mar-2014 01:45Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$	DynHt $\text{m}^2\cdot\text{s}^{-2}$	SigT $\text{kg}\cdot\text{m}^{-3}$
1	24.254	24.254	36.556	210.8	0.003	24.744
10	24.256	24.254	36.554	210.2	0.032	24.742
20	24.205	24.201	36.562	210.7	0.064	24.764
30	24.126	24.120	36.580	210.8	0.095	24.802
50	23.891	23.880	36.587	211.0	0.158	24.879
75	23.404	23.388	36.550	211.1	0.234	24.996
100	23.021	23.000	36.636	206.5	0.307	25.175
125	22.428	22.403	36.675	202.2	0.375	25.377
150	21.708	21.679	36.740	193.1	0.438	25.631
200	19.717	19.680	36.638	191.8	0.545	26.097
250	18.987	18.942	36.618	188.8	0.640	26.273
300	18.335	18.282	36.572	193.9	0.729	26.406
400	17.632	17.564	36.484	192.7	0.897	26.517
500	16.236	16.154	36.226	176.9	1.058	26.655
600	13.712	13.625	35.805	155.3	1.202	26.888
700	10.984	10.895	35.413	141.1	1.324	27.117
800	8.959	8.869	35.191	145.0	1.428	27.289
900	7.335	7.244	35.105	171.1	1.513	27.467
1000	5.853	5.762	35.066	211.2	1.580	27.635
1100	5.099	5.005	35.043	235.4	1.635	27.709
1200	4.691	4.591	35.020	246.4	1.685	27.738
1300	4.481	4.374	35.008	251.1	1.734	27.753
1400	4.276	4.162	34.997	255.6	1.782	27.767
1500	4.104	3.982	34.989	258.2	1.829	27.779
1750	3.800	3.660	34.972	262.2	1.945	27.799
2000	3.585	3.423	34.962	263.9	2.059	27.815
2500	3.172	2.969	34.947	264.3	2.285	27.845
3000	2.800	2.553	34.926	267.3	2.507	27.866
3500	2.487	2.195	34.907	269.2	2.725	27.881
4000	2.319	1.976	34.894	268.2	2.941	27.889
4500	2.281	1.881	34.887	265.4	3.164	27.890

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$
4911	1	2.222	1.774	34.876	-999.0
4530	2	2.283	1.879	34.888	265.4
4159	3	2.291	1.930	34.891	266.4
3771	4	2.377	2.058	34.899	269.5
3401	5	2.542	2.259	34.913	270.2
2996	6	2.799	2.553	34.926	267.9
2566	7	3.147	2.938	34.945	264.9
2165	8	3.448	3.273	34.957	263.6
1856	9	3.686	3.537	34.966	263.2
1597	10	3.964	3.836	34.979	260.4
1402	11	4.299	4.185	34.979	255.1
1230	12	4.654	4.552	35.017	247.3
1061	13	5.463	5.369	35.056	224.3
951	14	6.421	6.331	35.080	188.9
842	15	8.205	8.114	35.138	151.8
732	16	10.451	10.361	35.346	141.0
622	17	13.312	13.223	35.745	154.6
512	18	16.002	15.919	36.486	173.4
402	19	17.627	17.557	36.585	193.7
294	20	18.468	18.416	36.633	192.4
201	21	19.738	19.700	36.692	184.3
120	22	22.392	22.367	36.592	195.6
70	23	23.757	23.742	36.556	207.2
5	24	24.244	24.248	-999.000	-999.0

Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 7 (CTD007)  
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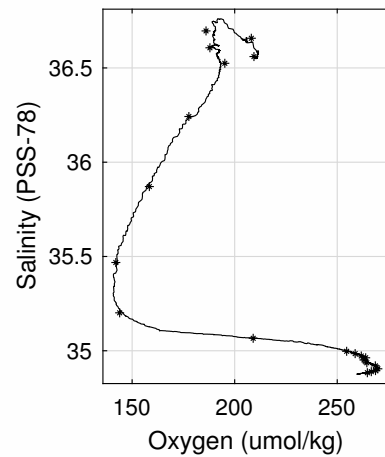
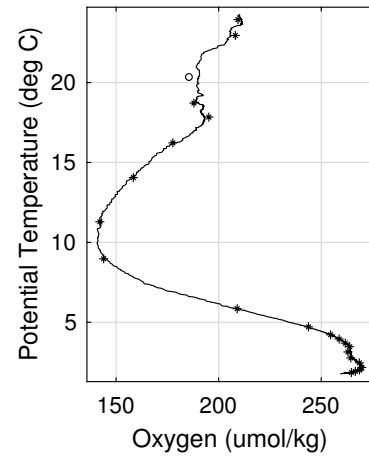
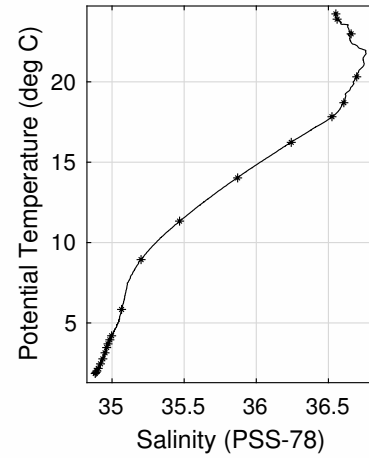
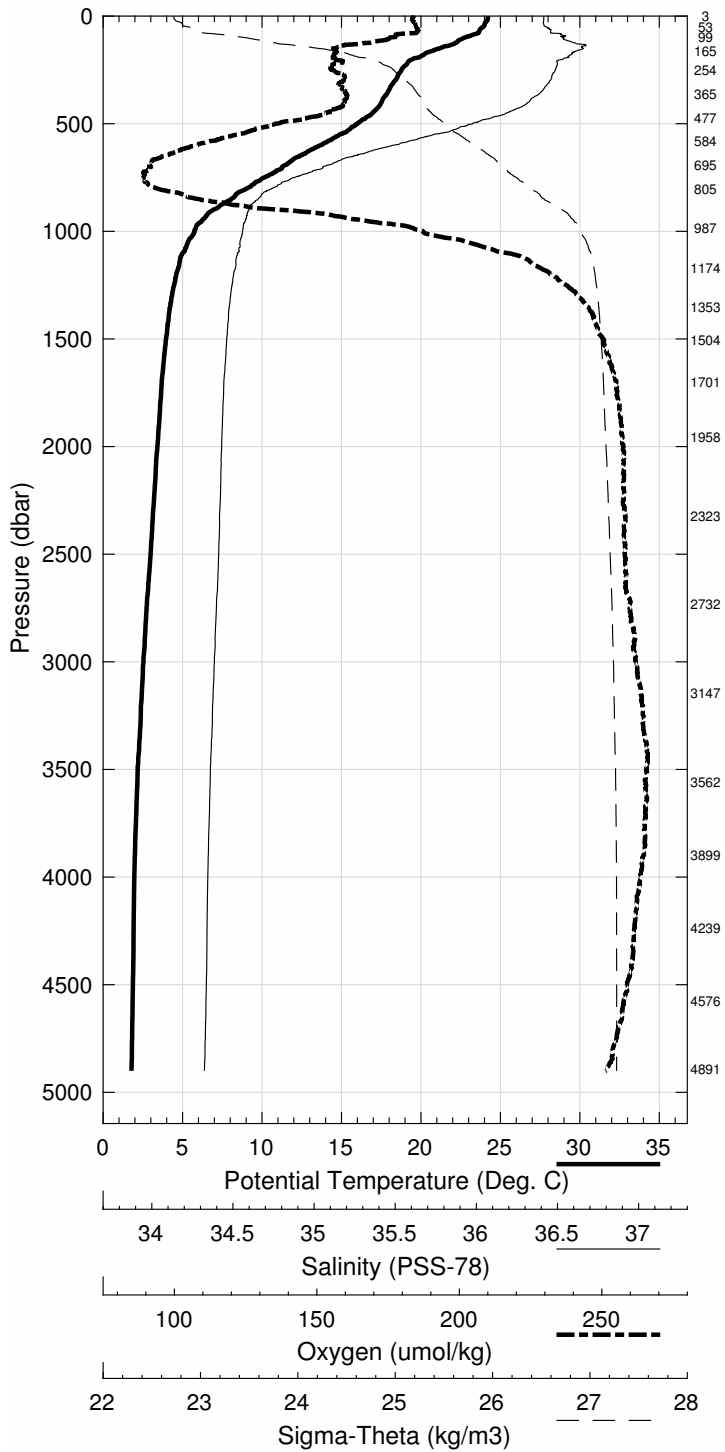


Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 8 (CTD008)  
 Latitude 26.501N Longitude 76.344W  
 18-Mar-2014 07:13Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$	DynHt $\text{m}^2\cdot\text{s}^{-2}$	SigT $\text{kg}\cdot\text{m}^{-3}$
1	24.218	24.218	36.554	210.3	0.003	24.753
10	24.213	24.211	36.553	210.1	0.032	24.754
20	24.180	24.176	36.552	209.9	0.064	24.764
30	24.039	24.032	36.550	210.7	0.095	24.806
50	23.909	23.899	36.565	210.9	0.158	24.857
75	23.668	23.653	36.587	210.8	0.234	24.946
100	22.750	22.729	36.648	204.0	0.307	25.262
125	22.158	22.133	36.708	197.9	0.373	25.479
150	21.200	21.171	36.747	189.6	0.433	25.778
200	19.513	19.476	36.648	189.9	0.537	26.157
250	18.811	18.766	36.609	189.6	0.630	26.312
300	18.416	18.363	36.583	192.4	0.719	26.394
400	17.588	17.519	36.476	192.3	0.887	26.522
500	16.091	16.010	36.202	175.0	1.048	26.670
600	13.755	13.668	35.809	154.9	1.192	26.883
700	11.362	11.272	35.462	143.1	1.316	27.086
800	9.138	9.047	35.209	144.5	1.422	27.275
900	7.022	6.933	35.096	176.2	1.507	27.504
1000	5.839	5.749	35.065	212.7	1.571	27.636
1100	5.100	5.006	35.040	234.1	1.627	27.706
1200	4.706	4.606	35.020	245.4	1.677	27.737
1300	4.437	4.330	35.006	252.3	1.726	27.756
1400	4.237	4.124	34.995	256.4	1.773	27.769
1500	4.080	3.958	34.987	258.9	1.820	27.780
1750	3.789	3.648	34.971	262.5	1.935	27.799
2000	3.579	3.417	34.961	263.9	2.050	27.814
2500	3.191	2.988	34.947	264.4	2.277	27.844
3000	2.781	2.535	34.926	267.2	2.498	27.867
3500	2.464	2.173	34.906	269.9	2.716	27.882
4000	2.306	1.963	34.893	268.4	2.931	27.889
4500	2.273	1.873	34.886	264.9	3.155	27.890

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$
4892	1	2.236	8.825	-999.000	-999.0
4577	2	2.265	1.856	34.884	264.7
4239	3	2.294	1.924	34.889	266.6
3899	4	2.342	2.009	34.895	268.7
3563	5	2.470	2.172	34.904	269.8
3147	6	2.716	2.456	34.920	268.6
2733	7	2.989	2.766	34.936	264.4
2323	8	3.331	3.142	34.951	263.0
1959	9	3.626	3.468	34.963	263.9
1702	10	3.835	3.698	34.972	261.7
1505	11	4.072	3.950	34.985	258.7
1353	12	4.311	4.201	34.997	254.6
1174	13	4.803	4.708	33.067	243.8
987	14	5.930	5.840	35.066	209.0
805	15	9.031	8.940	35.201	143.9
695	16	11.425	11.335	35.468	142.1
585	17	14.110	14.024	35.871	158.4
478	18	16.311	16.233	36.242	177.7
365	19	17.893	17.830	36.525	195.2
255	20	18.746	18.701	36.607	187.9
165	21	20.344	20.313	36.696	186.0
100	22	23.006	22.985	36.657	208.1
54	23	23.909	23.898	36.560	209.4
4	24	24.227	24.226	36.552	-999.0

Abaco March - April 2014 R/V Atlantic Explorer  
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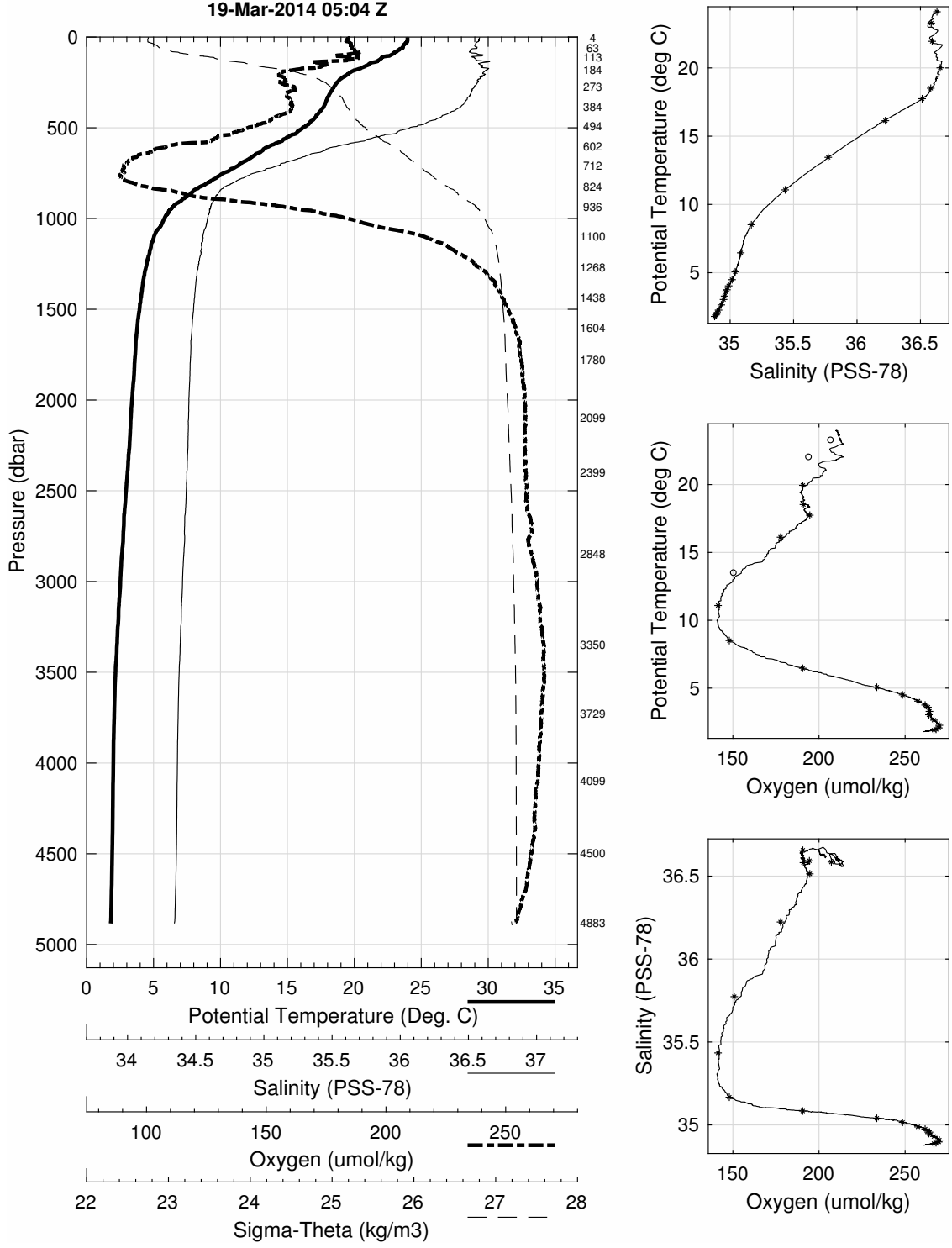


Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 9 (CTD009)  
 Latitude 26.496N Longitude 76.222W  
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Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$	DynHt $\text{m}^2\cdot\text{s}^{-2}$	SigT $\text{kg}\cdot\text{m}^{-3}$
1	23.973	23.973	36.618	210.3	0.003	24.875
10	23.975	23.973	36.614	210.3	0.031	24.872
20	23.977	23.973	36.612	209.8	0.061	24.871
30	23.889	23.883	36.597	210.5	0.092	24.886
50	23.657	23.647	36.590	211.1	0.153	24.950
75	23.240	23.224	36.563	212.4	0.228	25.054
100	22.729	22.709	36.636	207.7	0.299	25.259
125	21.901	21.876	36.596	210.7	0.365	25.466
150	21.103	21.074	36.617	204.2	0.425	25.705
200	19.640	19.603	36.635	190.6	0.532	26.114
250	18.750	18.705	36.603	189.7	0.625	26.323
300	18.324	18.271	36.572	192.8	0.713	26.409
400	17.603	17.534	36.480	193.0	0.882	26.521
500	16.216	16.135	36.218	180.1	1.043	26.654
600	13.775	13.688	35.812	155.5	1.189	26.881
700	11.513	11.421	35.482	142.7	1.314	27.073
800	9.224	9.133	35.220	143.9	1.421	27.269
900	7.182	7.092	35.102	174.3	1.506	27.486
1000	5.897	5.806	35.067	210.4	1.572	27.630
1100	5.119	5.025	35.040	233.8	1.628	27.704
1200	4.770	4.669	35.028	245.1	1.678	27.736
1300	4.436	4.329	35.006	252.6	1.727	27.756
1400	4.247	4.133	34.996	256.6	1.774	27.769
1500	4.066	3.945	34.987	259.1	1.821	27.781
1750	3.772	3.631	34.971	262.7	1.935	27.801
2000	3.546	3.386	34.960	264.4	2.050	27.817
2500	3.151	2.948	34.945	264.9	2.276	27.846
3000	2.765	2.520	34.924	268.2	2.496	27.867
3500	2.449	2.158	34.905	270.3	2.711	27.883
4000	2.337	1.993	34.895	268.6	2.927	27.888
4500	2.309	1.908	34.889	266.2	3.152	27.890

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$
4883	1	2.244	1.797	34.878	-999.0
4500	2	2.308	1.907	34.888	266.7
4100	3	2.322	1.968	34.893	268.0
3730	4	2.383	2.069	34.898	269.6
3351	5	2.539	2.262	34.909	269.9
2849	6	2.874	2.642	34.930	266.7
2400	7	3.235	3.040	34.948	263.8
2099	8	3.455	3.286	34.956	264.1
1780	9	3.733	3.590	34.966	263.3
1605	10	3.879	3.750	34.975	261.6
1439	11	4.152	4.036	34.988	257.5
1269	12	4.596	4.491	35.015	248.5
1100	13	5.161	5.066	35.040	233.5
936	14	6.545	6.456	35.084	190.6
825	15	8.606	8.515	35.167	147.9
713	16	11.158	11.067	35.434	141.4
602	17	13.539	13.452	35.773	150.8
495	18	16.215	16.135	36.223	177.7
384	19	17.810	17.744	36.514	194.7
274	20	18.561	18.512	36.581	191.0
184	21	20.042	20.008	36.656	190.6
114	22	21.971	21.948	36.593	194.4
64	23	23.298	23.285	36.585	207.2
4	24	24.114	24.113	36.630	-999.0

Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 9 (CTD009)  
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 19-Mar-2014 05:04 Z



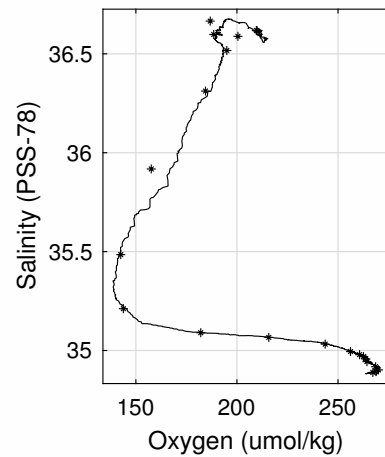
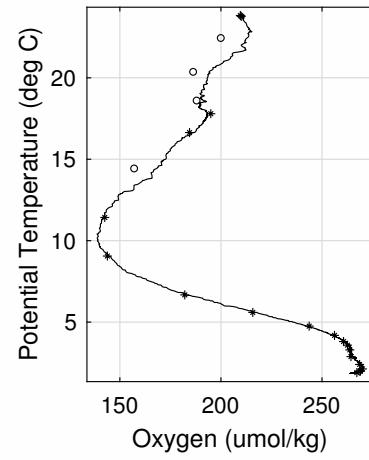
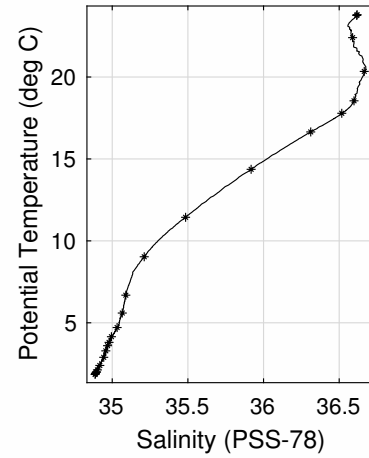
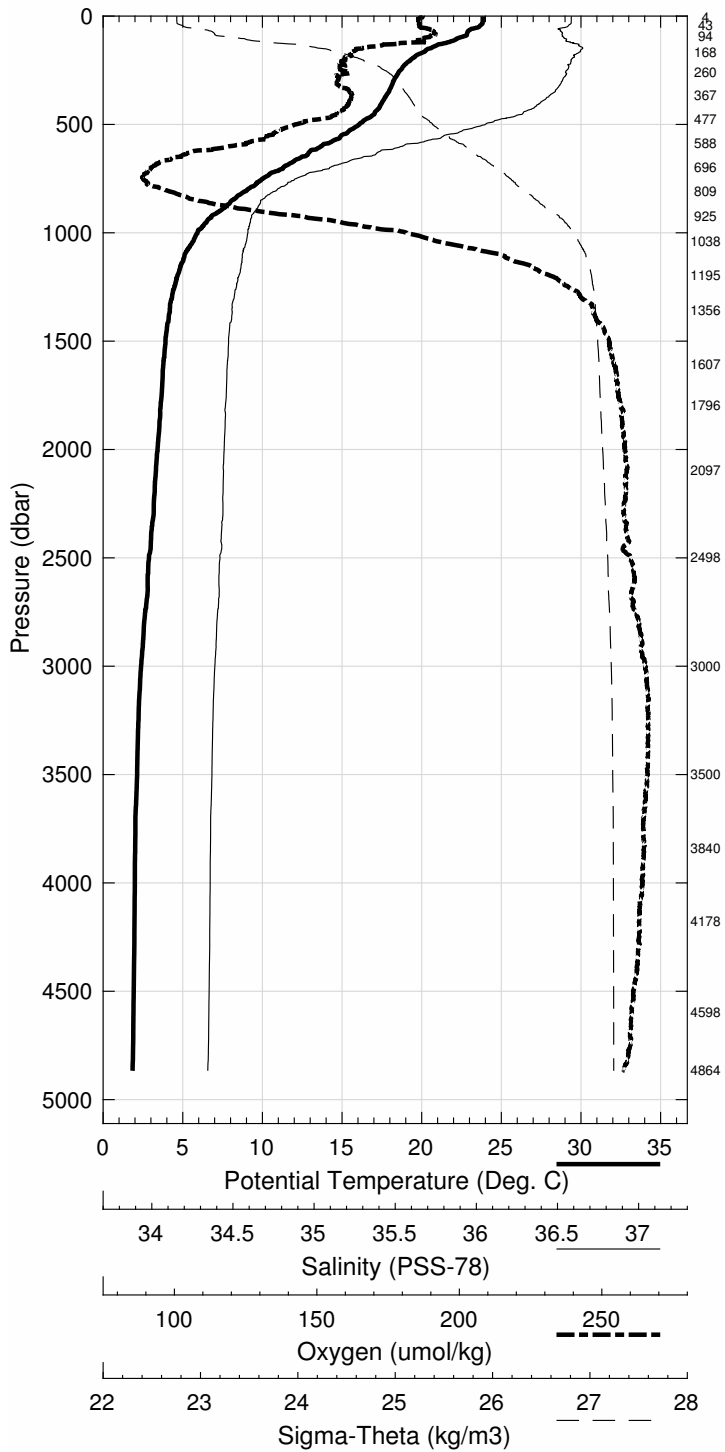
Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 10 (CTD010)  
 Latitude 26.498N Longitude 76.084W  
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Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$	DynHt $\text{m}^2\cdot\text{s}^{-2}$	SigT $\text{kg}\cdot\text{m}^{-3}$
1	23.834	23.834	36.623	211.7	0.003	24.920
10	23.833	23.831	36.621	210.9	0.030	24.920
20	23.834	23.830	36.621	210.7	0.061	24.920
30	23.833	23.826	36.621	210.6	0.091	24.921
50	23.600	23.590	36.600	211.2	0.151	24.975
75	22.893	22.877	36.576	214.8	0.223	25.165
100	22.353	22.333	36.586	212.1	0.293	25.329
125	21.472	21.447	36.629	205.5	0.357	25.611
150	20.504	20.475	36.676	195.5	0.413	25.913
200	19.372	19.335	36.622	191.7	0.514	26.175
250	18.708	18.664	36.600	190.5	0.606	26.331
300	18.297	18.244	36.578	189.0	0.693	26.421
400	17.577	17.508	36.474	192.5	0.861	26.523
500	16.166	16.085	36.210	178.6	1.022	26.659
600	13.789	13.702	35.814	161.8	1.167	26.879
700	11.385	11.294	35.465	141.0	1.292	27.084
800	9.160	9.069	35.216	144.5	1.397	27.276
900	7.381	7.290	35.109	169.0	1.484	27.464
1000	6.013	5.921	35.075	207.5	1.552	27.622
1100	5.211	5.116	35.048	231.9	1.609	27.700
1200	4.757	4.657	35.031	245.2	1.660	27.739
1300	4.425	4.319	35.009	252.8	1.708	27.759
1400	4.225	4.111	34.997	256.9	1.755	27.772
1500	4.034	3.913	34.983	260.2	1.801	27.781
1750	3.812	3.671	34.971	262.5	1.916	27.797
2000	3.578	3.417	34.962	264.2	2.032	27.815
2500	3.081	2.880	34.941	265.9	2.257	27.849
3000	2.626	2.384	34.917	269.6	2.473	27.874
3500	2.426	2.136	34.903	270.1	2.682	27.883
4000	2.334	1.991	34.895	268.7	2.897	27.888
4500	2.323	1.921	34.890	266.4	3.123	27.890

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$
4864	1	2.293	1.848	34.887	-999.0
4599	2	2.313	1.900	34.889	267.2
4178	3	2.334	1.970	34.893	268.7
3840	4	2.329	2.004	34.896	269.0
3500	5	2.416	2.126	34.902	270.0
3000	6	2.639	2.396	34.918	268.6
2499	7	3.095	2.894	34.944	264.3
2098	8	3.456	3.287	34.958	263.8
1796	9	3.748	3.604	34.969	262.6
1608	10	3.934	3.805	34.979	260.6
1356	11	4.261	4.151	34.995	256.2
1196	12	4.811	4.711	35.032	243.6
1038	13	5.689	5.596	35.066	215.8
926	14	6.775	6.685	35.090	182.1
809	15	9.122	9.030	35.211	143.8
696	16	11.529	11.438	35.485	142.5
588	17	14.455	14.367	35.918	157.6
478	18	16.728	16.648	36.312	184.5
368	19	17.850	17.786	36.517	195.0
260	20	18.594	18.548	36.598	188.5
168	21	20.374	20.342	36.666	186.8
94	22	22.422	22.403	36.589	200.5
43	23	23.766	23.757	36.616	210.0
4	24	23.808	23.807	36.618	209.6



Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 10 (CTD010)  
 Latitude 26.498 N Longitude 76.084 W  
 19-Mar-2014 10:26 Z



Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 11 (CTD011)  
 Latitude 26.504N Longitude 75.900W  
 19-Mar-2014 16:02Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$	DynHt $\text{m}^2\cdot\text{s}^{-2}$	SigT $\text{kg}\cdot\text{m}^{-3}$
1	24.221	24.221	36.649	210.2	0.003	24.824
10	24.173	24.170	36.648	210.3	0.031	24.839
20	24.160	24.156	36.649	210.4	0.062	24.843
30	24.147	24.141	36.647	209.5	0.093	24.847
50	23.962	23.951	36.626	210.4	0.155	24.888
75	23.146	23.130	36.574	212.1	0.229	25.090
100	22.448	22.428	36.583	211.6	0.299	25.299
125	21.611	21.586	36.598	210.6	0.364	25.549
150	20.535	20.507	36.668	196.9	0.423	25.899
200	19.314	19.277	36.624	190.2	0.522	26.192
250	18.698	18.653	36.599	191.4	0.614	26.333
300	18.300	18.247	36.575	192.0	0.701	26.417
400	17.712	17.643	36.499	192.9	0.870	26.509
500	16.380	16.298	36.251	181.8	1.032	26.641
600	13.841	13.753	35.823	163.2	1.178	26.875
700	11.513	11.422	35.481	142.1	1.303	27.072
800	9.236	9.144	35.207	139.6	1.409	27.257
900	7.533	7.441	35.105	163.4	1.499	27.439
1000	6.090	5.998	35.075	203.5	1.569	27.612
1100	5.327	5.231	35.056	228.9	1.626	27.692
1200	4.880	4.778	35.035	242.1	1.678	27.729
1300	4.560	4.452	35.017	250.2	1.728	27.751
1400	4.303	4.189	35.000	255.2	1.776	27.766
1500	4.172	4.050	35.001	256.6	1.823	27.782
1750	3.842	3.701	34.974	262.1	1.939	27.797
2000	3.591	3.430	34.962	263.9	2.054	27.814
2500	3.113	2.911	34.945	264.5	2.279	27.849
3000	2.601	2.359	34.916	269.4	2.494	27.875
3500	2.368	2.079	34.900	270.0	2.701	27.885
4000	2.295	1.953	34.892	267.9	2.914	27.889
4500	2.256	1.856	34.884	264.5	3.136	27.890

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$
4806	1	2.226	1.790	34.876	-999.0
4529	2	2.253	1.850	34.883	265.3
4250	3	2.282	1.911	34.888	267.0
3973	4	2.296	1.956	34.891	268.0
3700	5	2.326	2.016	34.896	269.2
3205	6	2.469	2.209	34.907	270.2
2702	7	2.888	2.670	34.933	266.4
2253	8	3.328	3.146	34.954	264.0
1898	9	3.686	3.532	34.968	263.4
1649	10	3.916	6.477	-999.000	-999.0
1387	11	4.294	4.181	34.999	255.5
1219	12	4.779	4.677	35.029	244.4
1048	13	5.679	5.585	35.066	215.9
936	14	6.733	6.643	35.089	186.4
828	15	8.778	8.686	35.167	145.1
714	16	11.044	10.953	35.419	141.5
606	17	13.742	13.654	35.809	157.6
497	18	16.199	16.118	36.219	175.5
386	19	17.746	17.679	36.505	197.0
275	20	18.589	18.540	36.591	191.2
185	21	19.545	19.511	36.626	194.4
120	22	21.708	21.684	36.575	214.7
69	23	23.333	23.319	36.581	210.0
4	24	24.430	24.429	36.654	-999.0

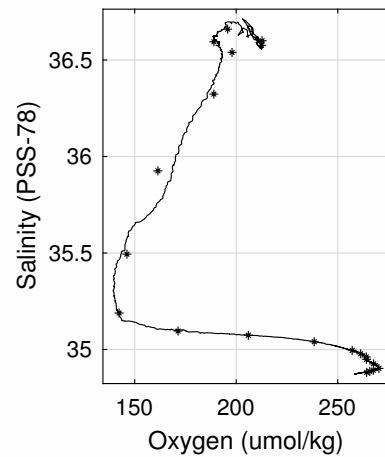
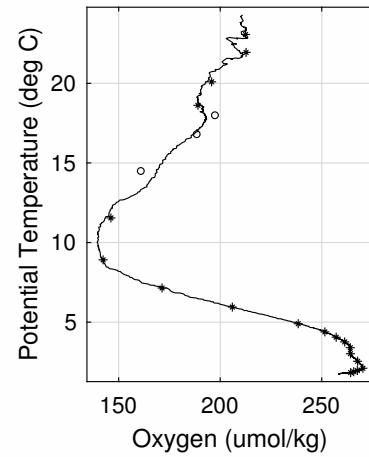
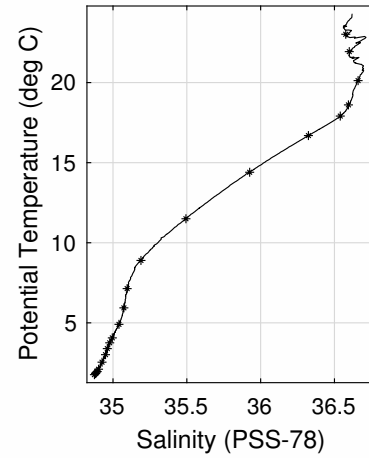
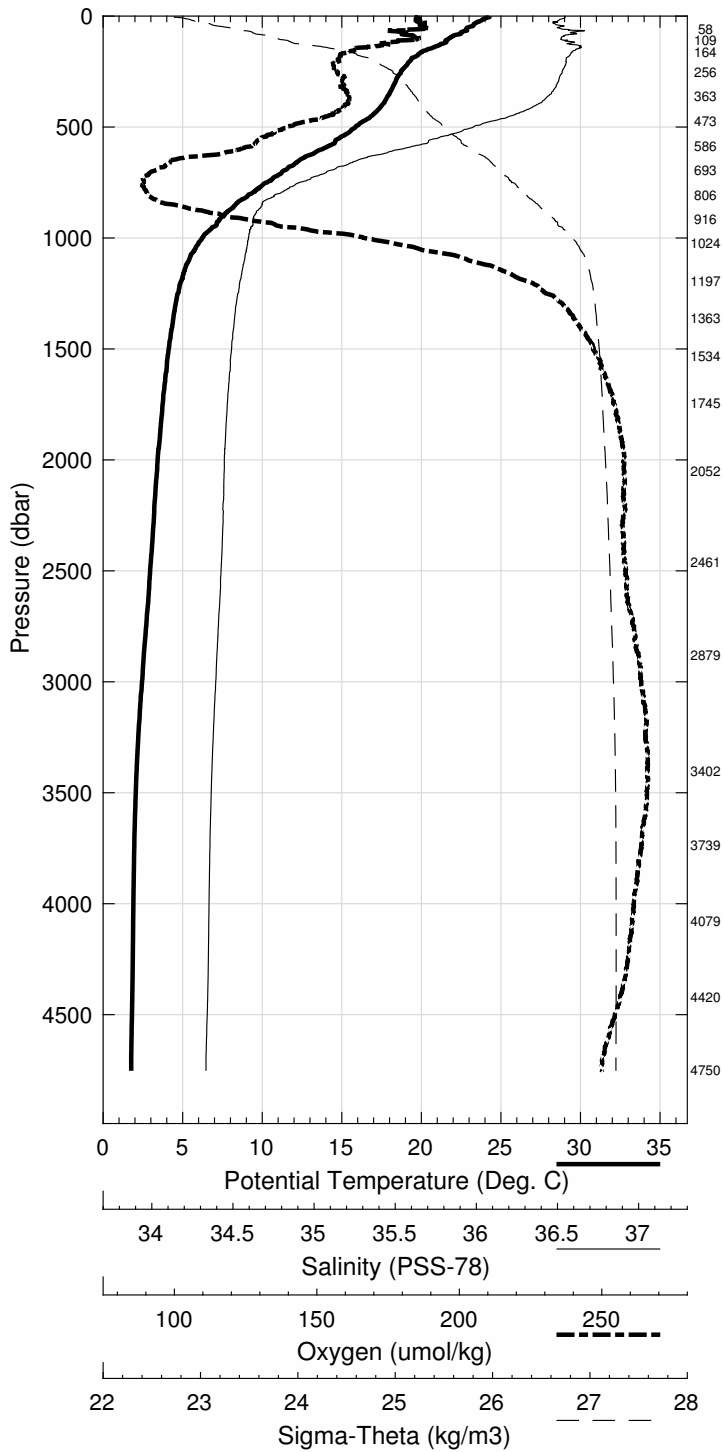


Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 12 (CTD012)  
 Latitude 26.499N Longitude 75.703W  
 19-Mar-2014 21:09Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$	DynHt $\text{m}^2\cdot\text{s}^{-2}$	SigT $\text{kg}\cdot\text{m}^{-3}$
1	24.282	24.282	36.621	210.8	0.003	24.785
10	24.037	24.035	36.615	210.9	0.031	24.854
20	23.765	23.761	36.586	210.5	0.062	24.914
30	23.451	23.445	36.563	212.7	0.092	24.990
50	22.972	22.962	36.589	211.9	0.150	25.150
75	22.488	22.473	36.647	208.0	0.218	25.336
100	21.777	21.757	36.601	210.9	0.283	25.503
125	21.261	21.236	36.635	201.6	0.344	25.674
150	20.407	20.379	36.673	194.6	0.400	25.937
200	19.367	19.330	36.624	190.5	0.499	26.177
250	18.762	18.717	36.605	189.8	0.592	26.321
300	18.390	18.337	36.583	191.8	0.680	26.401
400	17.607	17.538	36.480	191.9	0.849	26.520
500	15.935	15.854	36.172	176.7	1.008	26.683
600	13.847	13.759	35.820	165.0	1.153	26.872
700	11.353	11.262	35.462	142.0	1.277	27.087
800	9.404	9.311	35.226	141.0	1.384	27.244
900	7.670	7.576	35.108	160.4	1.474	27.421
1000	6.316	6.222	35.079	196.9	1.547	27.587
1100	5.496	5.399	35.061	223.8	1.606	27.676
1200	4.969	4.866	35.037	239.9	1.660	27.720
1300	4.663	4.554	35.021	248.2	1.710	27.743
1400	4.456	4.340	35.009	252.5	1.760	27.757
1500	4.250	4.127	34.998	256.0	1.808	27.771
1750	3.878	3.736	34.977	261.7	1.926	27.795
2000	3.584	3.422	34.963	264.1	2.042	27.815
2500	3.156	2.954	34.947	264.5	2.268	27.847
3000	2.688	2.444	34.921	268.6	2.487	27.872
3500	2.338	2.050	34.899	269.9	2.696	27.887
4000	2.242	1.901	34.888	266.6	2.906	27.890
4500	2.211	1.813	34.880	261.7	3.125	27.890

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$
4750	1	2.193	1.765	34.874	-999.0
4421	2	2.219	1.830	34.882	264.2
4079	3	2.237	1.887	34.886	265.8
3739	4	2.270	1.957	34.893	267.5
3402	5	2.383	2.104	34.902	270.3
2880	6	2.778	2.544	34.926	267.7
2462	7	3.213	3.013	34.949	264.1
2053	8	3.557	3.391	34.961	264.1
1745	9	3.894	3.753	34.978	261.3
1534	10	4.187	4.061	34.995	257.1
1364	11	4.500	4.391	33.052	251.5
1197	12	5.009	4.906	35.040	238.4
1024	13	6.030	5.935	35.074	206.0
917	14	7.229	7.137	35.096	171.4
807	15	8.986	8.895	35.189	142.3
694	16	11.589	11.498	35.494	146.2
586	17	14.490	14.402	35.926	161.4
474	18	16.771	16.692	36.324	189.0
364	19	17.973	17.910	36.539	198.0
256	20	18.653	18.607	36.595	189.0
164	21	20.154	20.123	36.660	195.8
110	22	21.954	21.933	36.600	212.7
58	23	23.030	23.018	36.576	212.5

Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 12 (CTD012)  
 Latitude 26.499 N Longitude 75.703 W  
 19-Mar-2014 21:09 Z

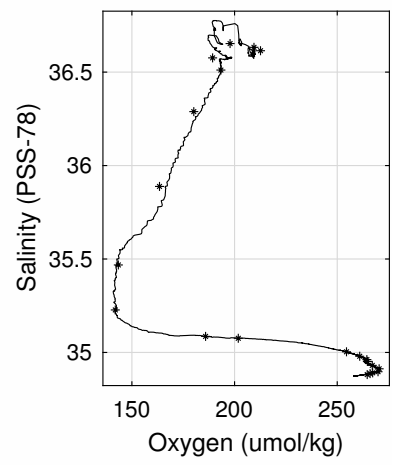
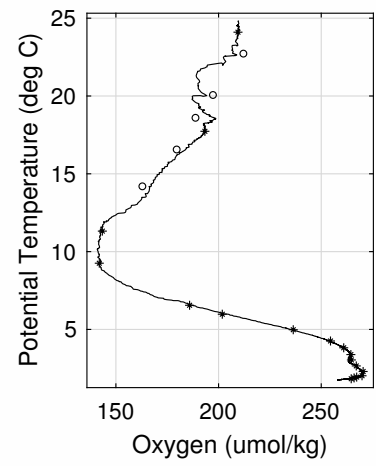
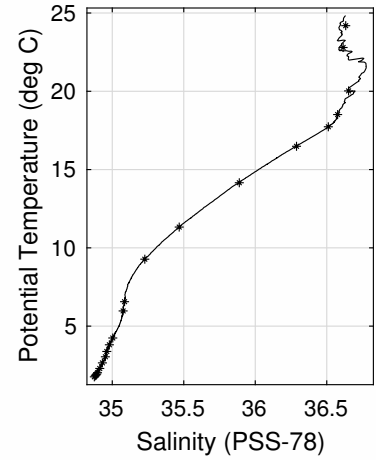
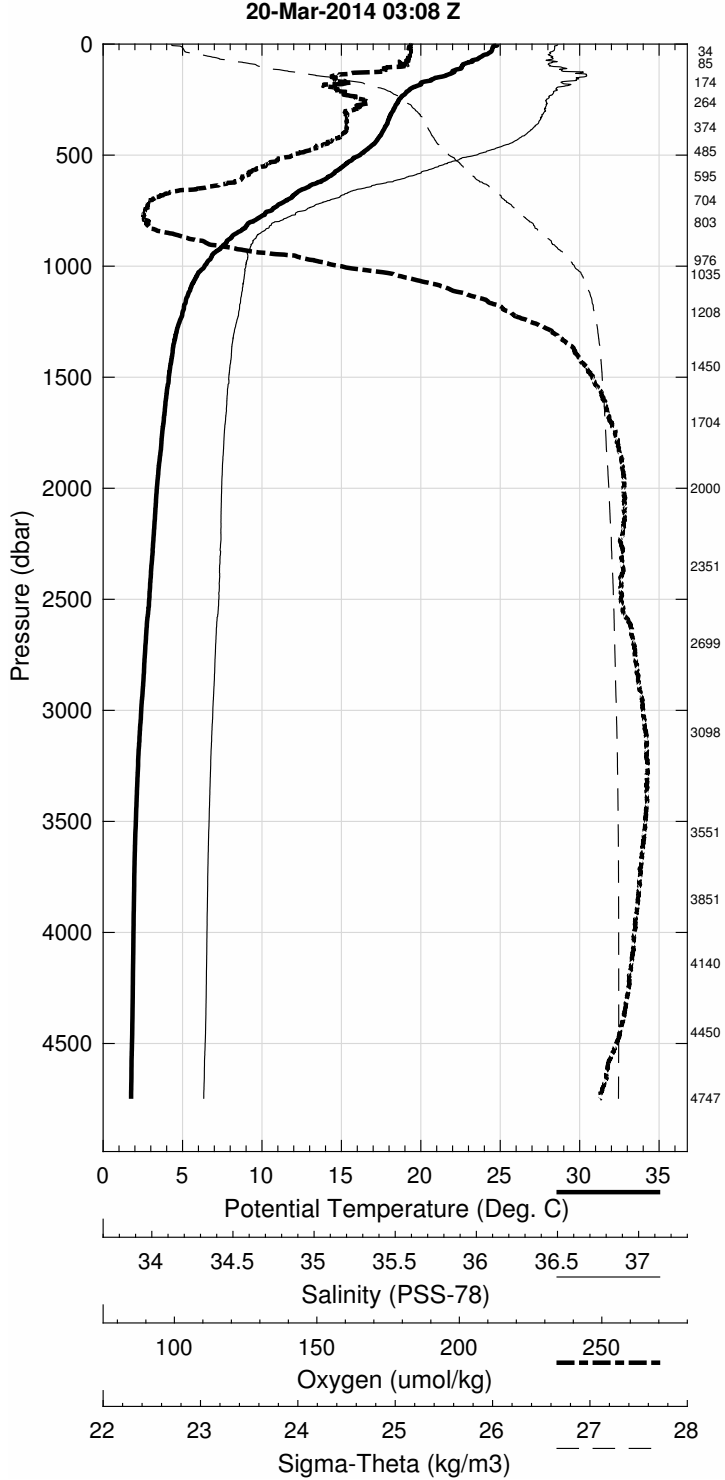


Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 13 (CTD013)  
 Latitude 26.501N Longitude 75.499W  
 20-Mar-2014 03:08Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$	DynHt $\text{m}^2\cdot\text{s}^{-2}$	SigT $\text{kg}\cdot\text{m}^{-3}$
1	24.820	24.820	36.632	209.7	0.003	24.631
10	24.573	24.571	36.616	209.2	0.033	24.694
20	24.512	24.507	36.617	209.7	0.065	24.713
30	24.472	24.465	36.612	209.5	0.097	24.723
50	23.945	23.935	36.588	209.5	0.161	24.864
75	23.251	23.236	36.595	208.9	0.236	25.075
100	22.625	22.604	36.605	207.8	0.307	25.266
125	22.145	22.120	36.748	201.5	0.372	25.513
150	21.093	21.064	36.739	190.2	0.432	25.801
200	19.424	19.387	36.626	190.5	0.535	26.164
250	18.666	18.622	36.576	197.5	0.627	26.324
300	18.314	18.261	36.570	193.6	0.715	26.409
400	17.615	17.546	36.481	192.4	0.883	26.519
500	16.250	16.169	36.227	179.5	1.045	26.652
600	14.210	14.121	35.879	166.5	1.191	26.841
700	11.712	11.620	35.507	143.7	1.319	27.055
800	9.442	9.350	35.226	142.7	1.428	27.238
900	7.789	7.695	35.111	157.8	1.519	27.407
1000	6.479	6.383	35.082	191.7	1.593	27.568
1100	5.591	5.493	35.065	219.2	1.654	27.668
1200	5.144	5.040	35.048	233.9	1.708	27.709
1300	4.719	4.610	35.024	246.0	1.760	27.739
1400	4.465	4.348	35.010	252.2	1.809	27.757
1500	4.257	4.134	34.997	256.1	1.858	27.770
1750	3.864	3.722	34.976	262.0	1.976	27.795
2000	3.545	3.384	34.962	264.0	2.091	27.818
2500	3.110	2.908	34.948	263.3	2.314	27.852
3000	2.642	2.400	34.918	269.0	2.529	27.873
3500	2.346	2.058	34.899	269.8	2.737	27.887
4000	2.251	1.910	34.889	266.8	2.947	27.890
4500	2.212	1.814	34.880	262.3	3.167	27.890

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$
4748	1	2.189	1.761	34.874	-999.0
4451	2	2.224	1.831	34.882	264.6
4140	3	2.241	1.884	34.887	266.0
3851	4	2.261	1.937	34.891	267.3
3552	5	2.317	2.023	34.897	269.9
3099	6	2.547	2.296	34.913	270.4
2700	7	2.870	2.652	34.931	267.1
2351	8	3.231	3.042	34.952	264.7
2000	9	3.542	3.382	34.962	264.4
1704	10	3.947	3.808	34.980	260.9
1451	11	4.363	4.243	35.004	254.5
1208	12	5.079	6.939	-999.000	-999.0
1035	13	6.067	5.971	35.076	201.8
976	14	6.656	6.561	35.086	185.9
803	15	9.368	9.276	35.228	141.9
704	16	11.419	11.328	35.468	143.4
596	17	14.247	14.158	35.888	163.4
485	18	16.568	16.488	36.289	180.1
374	19	17.798	17.733	36.511	193.3
265	20	18.561	18.514	36.576	189.3
175	21	20.057	20.025	36.653	197.8
86	22	22.813	22.796	36.614	212.6
34	23	24.198	24.191	36.633	209.4

Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 13 (CTD013)  
 Latitude 26.501 N Longitude 75.499 W  
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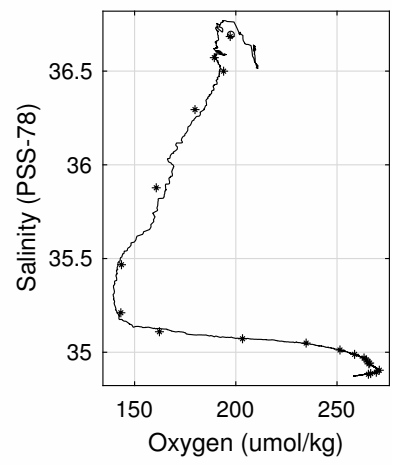
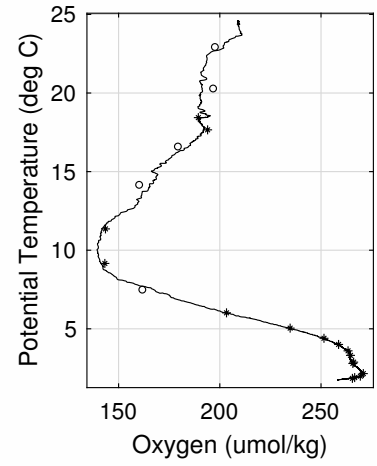
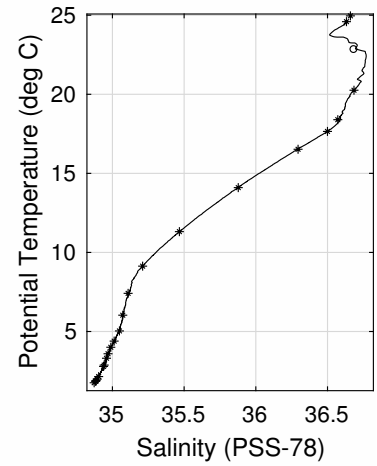
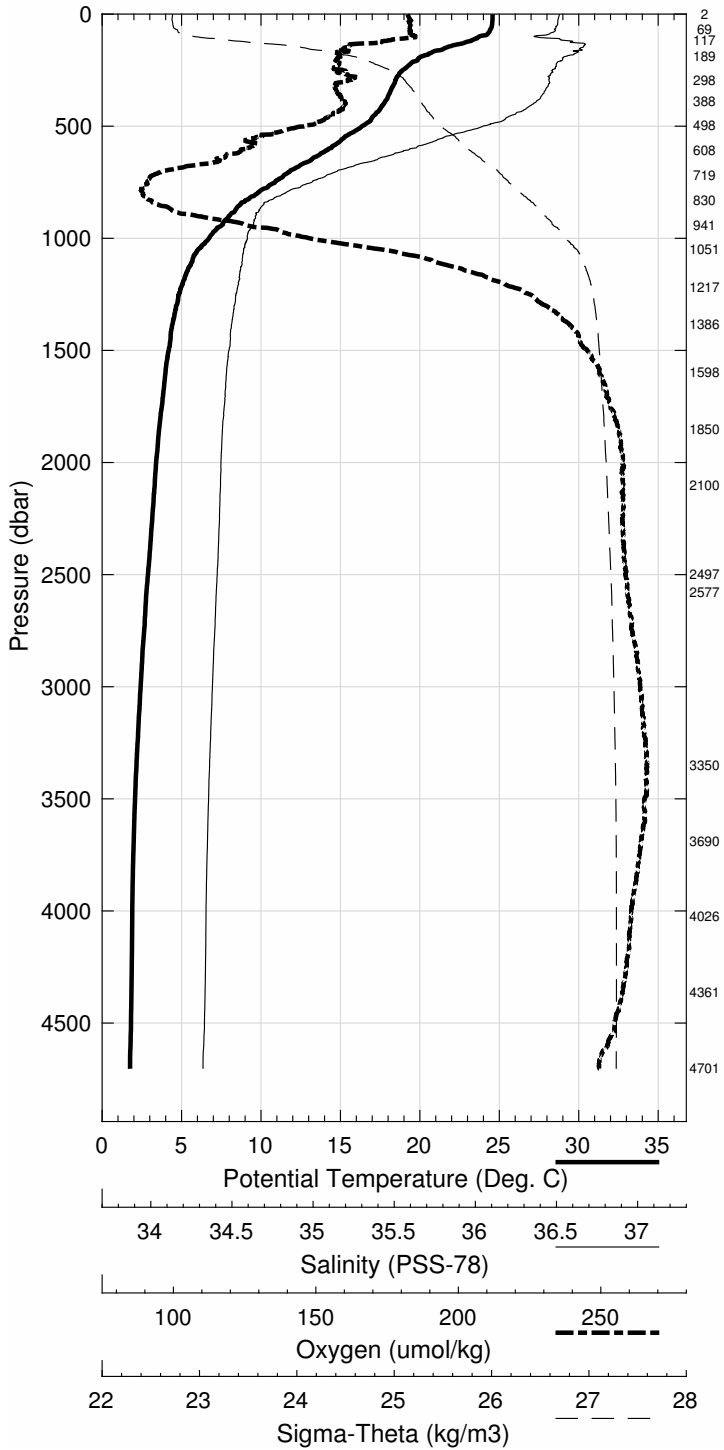
Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 14 (CTD014)  
 Latitude 26.498N Longitude 75.302W  
 20-Mar-2014 08:39Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$	DynHt $\text{m}^2\cdot\text{s}^{-2}$	SigT $\text{kg}\cdot\text{m}^{-3}$
1	24.577	24.577	36.641	208.6	0.003	24.711
10	24.577	24.575	36.638	208.8	0.032	24.709
20	24.577	24.573	36.635	209.1	0.065	24.707
30	24.569	24.563	36.632	209.3	0.097	24.709
50	24.549	24.538	36.630	209.5	0.162	24.714
75	24.419	24.402	36.619	208.8	0.243	24.747
100	23.769	23.748	36.515	210.7	0.323	24.864
125	22.919	22.893	36.696	201.8	0.396	25.251
150	21.671	21.642	36.748	192.2	0.460	25.648
200	19.919	19.881	36.657	190.1	0.569	26.058
250	18.960	18.915	36.604	191.7	0.665	26.270
300	18.493	18.440	36.591	192.4	0.754	26.381
400	17.794	17.725	36.511	192.5	0.926	26.498
500	16.436	16.354	36.261	182.0	1.089	26.636
600	14.357	14.267	35.901	167.2	1.237	26.827
700	11.927	11.834	35.540	144.9	1.368	27.040
800	9.850	9.755	35.276	140.0	1.480	27.209
900	8.101	8.005	35.132	153.9	1.574	27.377
1000	6.823	6.725	35.092	183.2	1.653	27.529
1100	5.789	5.689	35.068	214.9	1.717	27.646
1200	5.177	5.073	35.048	233.4	1.773	27.705
1300	4.791	4.681	35.028	244.3	1.825	27.734
1400	4.501	4.385	35.013	251.3	1.875	27.755
1500	4.317	4.193	35.001	255.1	1.924	27.767
1750	3.899	3.757	34.978	261.2	2.043	27.794
2000	3.563	3.402	34.962	264.1	2.158	27.816
2500	3.090	2.888	34.943	265.1	2.382	27.850
3000	2.666	2.422	34.919	268.9	2.598	27.872
3500	2.360	2.071	34.900	270.1	2.807	27.886
4000	2.238	1.898	34.888	266.6	3.018	27.890
4500	2.215	1.817	34.880	262.2	3.238	27.890

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$
4702	1	2.180	1.759	34.873	-999.0
4362	2	2.229	1.847	34.883	265.5
4026	3	2.240	1.896	34.886	266.6
3690	4	2.295	1.987	34.893	269.4
3351	5	2.424	2.150	34.904	270.9
2578	6	2.999	2.791	34.938	265.7
2498	7	3.078	2.877	34.943	266.1
2100	8	3.478	3.309	34.959	264.6
1851	9	3.743	3.593	34.969	263.4
1599	10	4.135	4.004	34.989	258.7
1387	11	4.508	4.393	35.012	251.5
1218	12	5.141	5.035	35.049	234.7
1051	13	6.129	6.031	35.072	203.3
941	14	7.510	7.413	35.109	162.3
830	15	9.228	9.133	35.211	143.2
719	16	11.408	11.315	35.467	143.5
609	17	14.189	14.098	35.878	160.7
499	18	16.606	16.524	36.295	179.8
388	19	17.719	17.652	36.500	194.0
298	20	18.447	18.394	36.572	189.4
190	21	20.293	20.257	36.685	197.2
118	22	22.813	22.789	36.689	198.1
70	23	24.608	24.593	36.632	-999.0
2	24	24.960	24.959	36.660	-999.0



Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 14 (CTD014)  
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 20-Mar-2014 08:39 Z

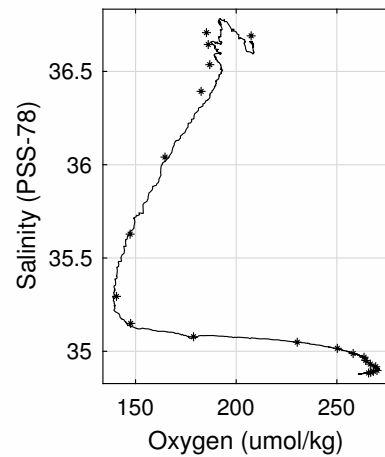
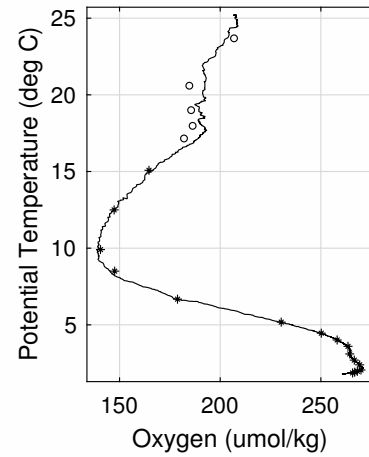
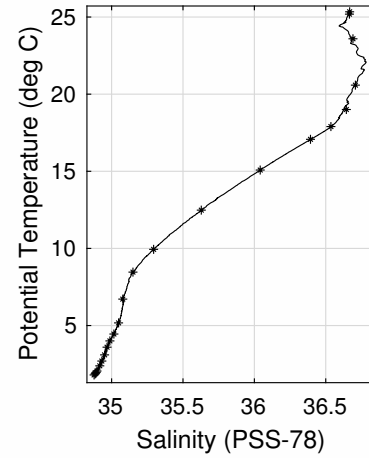
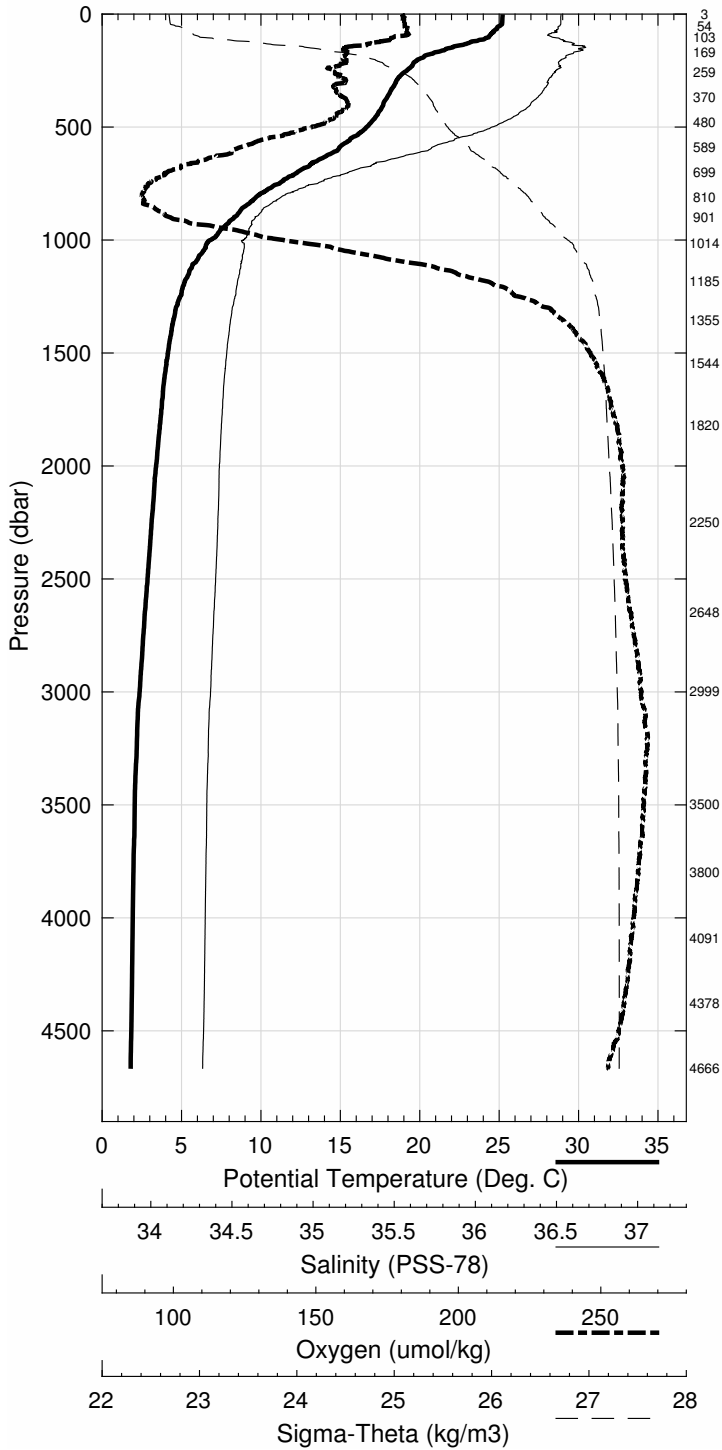


Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 15 (CTD015)  
 Latitude 26.507N Longitude 75.081W  
 20-Mar-2014 14:49Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$	DynHt $\text{m}^2\cdot\text{s}^{-2}$	SigT $\text{kg}\cdot\text{m}^{-3}$
1	25.216	25.215	36.661	207.0	0.003	24.531
10	25.214	25.212	36.659	207.2	0.034	24.531
20	25.207	25.203	36.659	206.7	0.068	24.533
30	25.203	25.197	36.659	207.5	0.102	24.535
50	25.080	25.069	36.656	208.2	0.170	24.572
75	24.654	24.638	36.628	208.5	0.253	24.682
100	24.380	24.358	36.612	205.0	0.335	24.755
125	23.196	23.170	36.711	200.1	0.411	25.182
150	21.941	21.911	36.768	191.1	0.477	25.587
200	19.949	19.912	36.665	191.6	0.587	26.055
250	19.235	19.190	36.634	189.6	0.685	26.222
300	18.563	18.510	36.593	192.0	0.775	26.365
400	17.773	17.704	36.508	192.8	0.946	26.501
500	16.730	16.647	36.317	183.5	1.110	26.610
600	14.945	14.852	36.004	163.3	1.263	26.779
700	12.390	12.294	35.604	145.8	1.397	27.001
800	9.996	9.900	35.290	138.8	1.512	27.196
900	8.408	8.310	35.139	146.7	1.610	27.336
1000	6.923	6.824	35.077	176.2	1.692	27.504
1100	5.959	5.858	35.070	209.0	1.759	27.627
1200	5.241	5.136	35.048	231.2	1.816	27.697
1300	4.755	4.645	35.025	245.2	1.869	27.736
1400	4.490	4.374	35.010	251.8	1.919	27.754
1500	4.268	4.145	34.997	256.2	1.968	27.769
1750	3.869	3.727	34.975	262.0	2.086	27.795
2000	3.561	3.400	34.960	264.6	2.202	27.815
2500	3.059	2.858	34.942	265.1	2.424	27.852
3000	2.602	2.360	34.916	269.4	2.637	27.875
3500	2.339	2.051	34.898	270.0	2.843	27.886
4000	2.269	1.928	34.890	267.3	3.055	27.889
4500	2.237	1.838	34.882	263.6	3.276	27.890

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$
4667	1	2.215	1.797	34.877	-999.0
4379	2	2.247	1.862	34.884	265.8
4091	3	2.263	1.911	34.888	266.8
3801	4	2.290	1.970	34.893	268.1
3500	5	2.340	2.052	34.897	269.9
3000	6	2.631	2.388	34.917	269.3
2649	7	2.911	2.698	34.931	266.6
2251	8	3.279	3.099	34.951	264.3
1821	9	3.744	3.597	34.968	263.5
1545	10	4.129	4.004	34.988	258.1
1355	11	4.563	4.450	35.016	250.2
1185	12	5.275	5.172	35.049	230.3
1014	13	6.813	6.714	35.078	178.8
902	14	8.563	8.464	35.149	147.6
811	15	10.037	9.940	35.294	140.5
700	16	12.578	12.482	35.628	147.3
590	17	15.173	15.081	36.041	164.6
480	18	17.154	17.073	36.393	182.6
370	19	17.964	17.899	36.536	186.9
259	20	19.052	19.005	36.644	186.1
170	21	20.618	20.585	36.708	185.2
104	22	23.611	23.590	36.691	207.4
55	23	25.200	25.188	36.666	-999.0
4	24	25.340	25.340	36.667	-999.0

Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 15 (CTD015)  
 Latitude 26.507 N Longitude 75.081 W  
 20-Mar-2014 14:49 Z

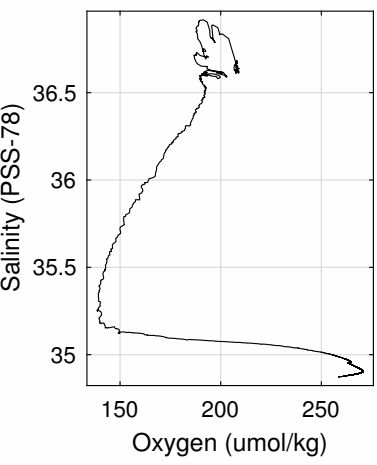
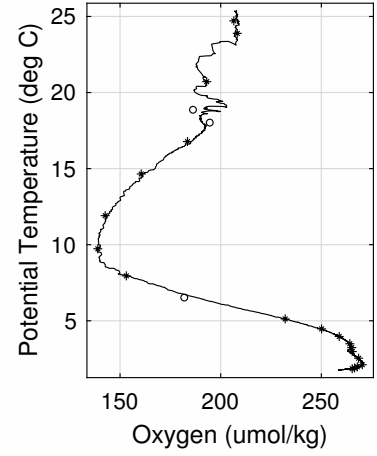
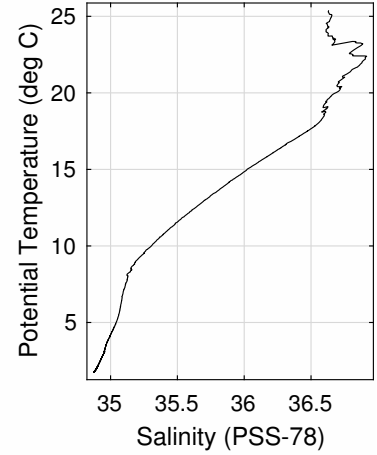
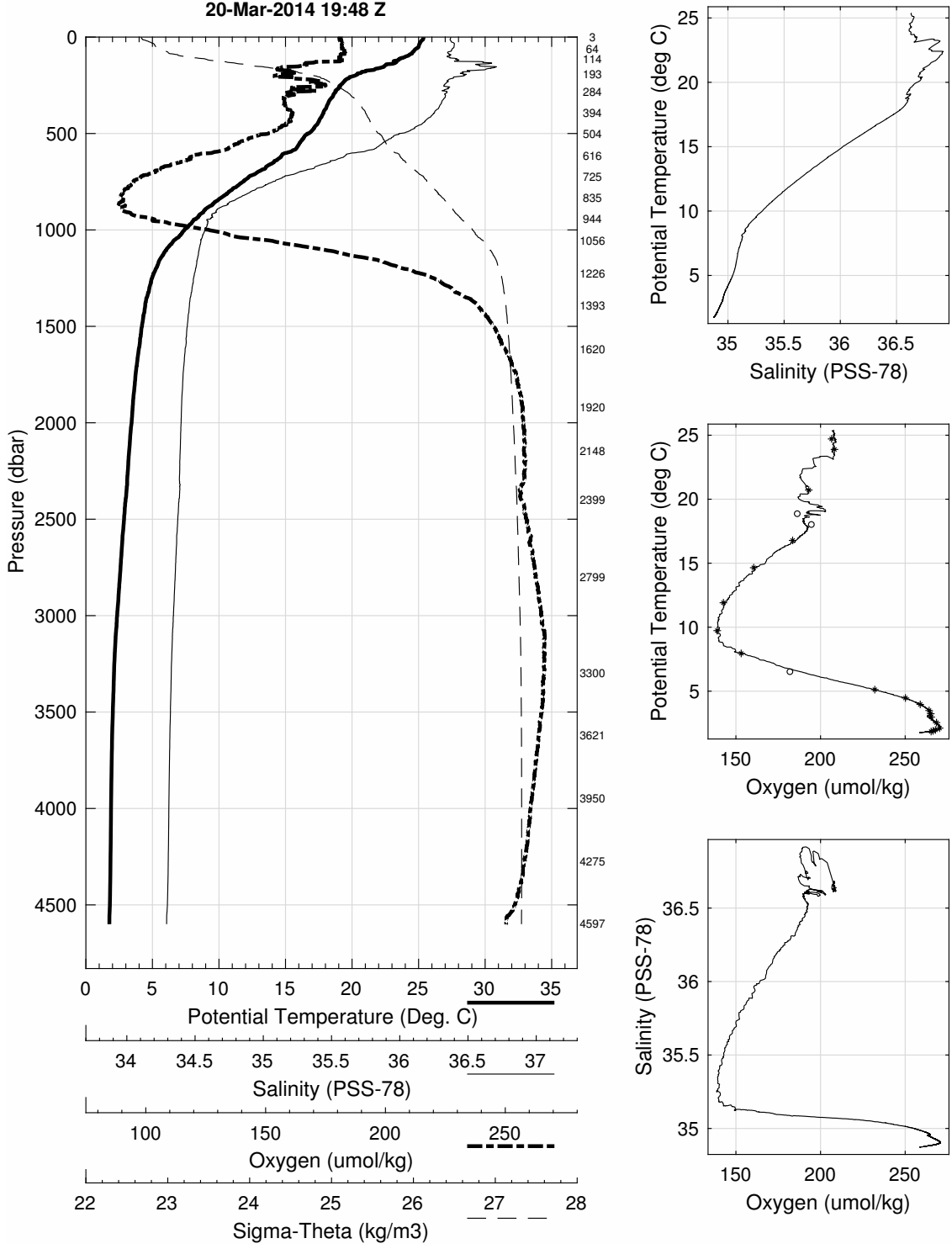


Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 16 (CTD016)  
 Latitude 26.503N Longitude 74.799W  
 20-Mar-2014 19:48Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$	DynHt $\text{m}^2\cdot\text{s}^{-2}$	SigT $\text{kg}\cdot\text{m}^{-3}$
1	25.371	25.370	36.634	207.6	0.003	24.463
10	25.346	25.343	36.630	206.8	0.035	24.468
20	25.215	25.210	36.634	207.9	0.069	24.512
30	25.124	25.118	36.651	208.2	0.103	24.554
50	25.009	24.998	36.654	208.0	0.170	24.593
75	24.629	24.613	36.627	208.7	0.253	24.690
100	24.065	24.044	36.615	207.4	0.334	24.851
125	23.144	23.118	36.656	207.7	0.408	25.156
150	22.448	22.418	36.813	195.1	0.476	25.477
200	20.246	20.208	36.717	187.3	0.589	26.016
250	19.163	19.118	36.593	203.0	0.687	26.209
300	18.656	18.603	36.600	192.7	0.779	26.346
400	17.864	17.794	36.523	192.7	0.951	26.490
500	16.753	16.670	36.314	185.1	1.117	26.602
600	15.208	15.115	36.042	167.7	1.272	26.750
700	13.004	12.905	35.694	150.2	1.411	26.950
800	10.886	10.785	35.398	139.9	1.532	27.124
900	8.993	8.891	35.180	139.9	1.638	27.277
1000	7.508	7.405	35.110	166.6	1.727	27.448
1100	6.173	6.070	35.076	201.3	1.800	27.603
1200	5.364	5.258	35.053	227.0	1.859	27.687
1300	4.879	4.768	35.031	241.8	1.913	27.727
1400	4.562	4.444	35.014	250.4	1.964	27.749
1500	4.341	4.217	35.002	254.8	2.013	27.765
1750	3.873	3.731	34.975	261.9	2.132	27.794
2000	3.598	3.436	34.963	264.2	2.248	27.814
2500	3.070	2.869	34.942	265.1	2.472	27.851
3000	2.589	2.347	34.915	269.8	2.685	27.875
3500	2.314	2.026	34.897	269.9	2.890	27.887
4000	2.229	1.888	34.887	266.4	3.099	27.890
4500	2.200	1.802	34.878	261.5	3.318	27.890

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$
4598	1	2.174	8.486	-999.000	-999.0
4276	2	2.221	8.195	-999.000	-999.0
3950	3	2.233	7.858	-999.000	-999.0
3621	4	2.272	7.523	-999.000	-999.0
3301	5	2.379	7.242	-999.000	-999.0
2800	6	2.763	6.964	-999.000	-999.0
2400	7	3.167	6.812	-999.000	-999.0
2148	8	3.405	6.694	-999.000	-999.0
1920	9	3.644	6.603	-999.000	-999.0
1620	10	4.091	6.599	-999.000	-999.0
1394	11	4.583	6.737	-999.000	-999.0
1226	12	5.221	7.098	-999.000	-999.0
1056	13	6.534	8.100	-999.000	-999.0
944	14	8.044	9.385	-999.000	-999.0
836	15	9.857	10.977	-999.000	-999.0
725	16	12.043	12.945	-999.000	-999.0
617	17	14.718	15.408	-999.000	-999.0
504	18	16.839	17.355	-999.000	-999.0
394	19	18.022	18.405	-999.000	-999.0
284	20	18.776	19.043	-999.000	-999.0
193	21	21.104	21.265	-999.000	-999.0
114	22	24.479	24.555	-999.000	-999.0
64	23	24.780	24.822	-999.000	-999.0
3	24	25.326	25.328	-999.000	-999.0

Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 16 (CTD016)  
 Latitude 26.503 N Longitude 74.799 W  
 20-Mar-2014 19:48 Z

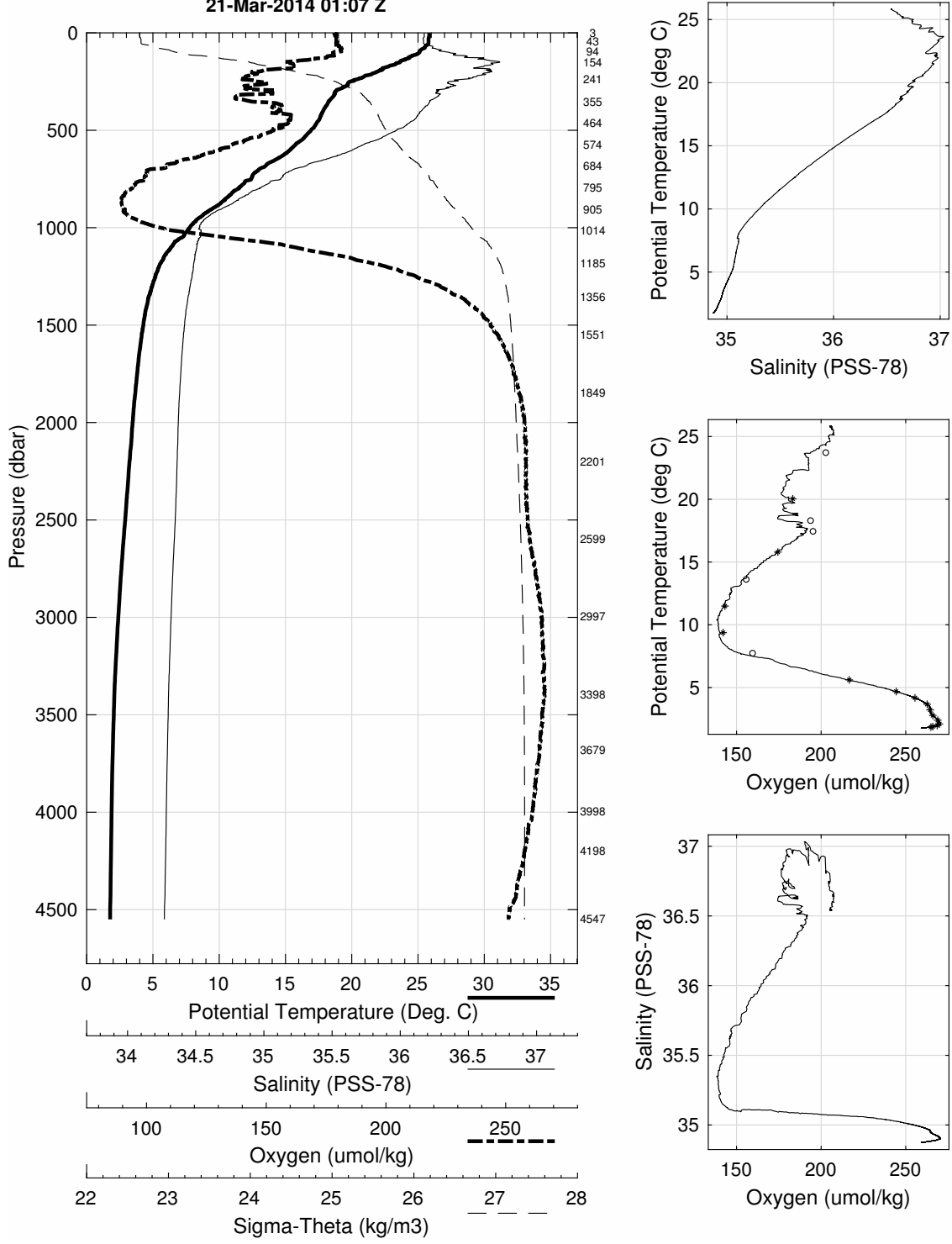


Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 17 (CTD017)  
 Latitude 26.506N Longitude 74.519W  
 21-Mar-2014 01:07Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$	DynHt $\text{m}^2\cdot\text{s}^{-2}$	SigT $\text{kg}\cdot\text{m}^{-3}$
1	25.845	25.845	36.548	205.0	0.004	24.250
10	25.850	25.848	36.546	205.4	0.037	24.248
20	25.846	25.842	36.547	205.5	0.073	24.250
30	25.801	25.795	36.540	206.0	0.110	24.260
50	25.802	25.791	36.541	205.6	0.183	24.262
75	25.541	25.524	36.601	207.0	0.274	24.390
100	25.131	25.109	36.705	205.1	0.360	24.597
125	24.341	24.314	36.805	202.8	0.441	24.914
150	23.673	23.641	37.032	190.0	0.514	25.288
200	21.932	21.892	36.971	179.2	0.641	25.747
250	19.912	19.866	36.709	181.1	0.749	26.102
300	18.832	18.778	36.627	184.0	0.844	26.322
400	17.923	17.853	36.528	188.4	1.018	26.480
500	17.008	16.924	36.368	186.5	1.184	26.583
600	15.441	15.347	36.086	169.9	1.341	26.732
700	13.110	13.011	35.706	148.0	1.483	26.938
800	11.525	11.421	35.479	142.1	1.608	27.071
900	9.625	9.519	35.247	139.6	1.720	27.226
1000	7.858	7.753	35.100	151.1	1.814	27.389
1100	6.453	6.348	35.082	192.8	1.892	27.572
1200	5.576	5.468	35.062	221.3	1.954	27.668
1300	5.056	4.943	35.040	238.0	2.010	27.714
1400	4.649	4.531	35.019	247.8	2.062	27.744
1500	4.403	4.278	35.004	253.4	2.112	27.760
1750	3.951	3.808	34.980	260.7	2.233	27.790
2000	3.629	3.467	34.964	264.0	2.350	27.812
2500	3.113	2.911	34.944	265.2	2.577	27.849
3000	2.632	2.389	34.917	269.3	2.791	27.873
3500	2.337	2.049	34.899	269.6	2.999	27.887
4000	2.220	1.880	34.886	266.6	3.208	27.890
4500	2.171	1.774	34.875	259.5	3.426	27.889

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$
4548	1	2.174	8.437	-999.000	-999.0
4199	2	2.206	8.102	-999.000	-999.0
3999	3	2.224	7.902	-999.000	-999.0
3679	4	2.284	7.599	-999.000	-999.0
3399	5	2.377	7.355	-999.000	-999.0
2998	6	2.641	7.103	-999.000	-999.0
2599	7	2.986	6.908	-999.000	-999.0
2201	8	3.395	6.755	-999.000	-999.0
1850	9	3.809	6.657	-999.000	-999.0
1551	10	4.299	6.695	-999.000	-999.0
1356	11	4.796	6.883	-999.000	-999.0
1185	12	5.698	7.490	-999.000	-999.0
1015	13	7.756	9.205	-999.000	-999.0
906	14	9.480	10.706	-999.000	-999.0
795	15	11.537	12.541	-999.000	-999.0
684	16	13.608	14.408	-999.000	-999.0
574	17	15.926	16.536	-999.000	-999.0
465	18	17.436	17.899	-999.000	-999.0
356	19	18.295	18.637	-999.000	-999.0
241	20	20.119	20.331	-999.000	-999.0
155	21	23.666	23.775	-999.000	-999.0
94	22	25.153	25.213	-999.000	-999.0
44	23	25.820	25.847	-999.000	-999.0
3	24	25.864	25.867	-999.000	-999.0

Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 17 (CTD017)  
 Latitude 26.506 N Longitude 74.519 W  
 21-Mar-2014 01:07 Z



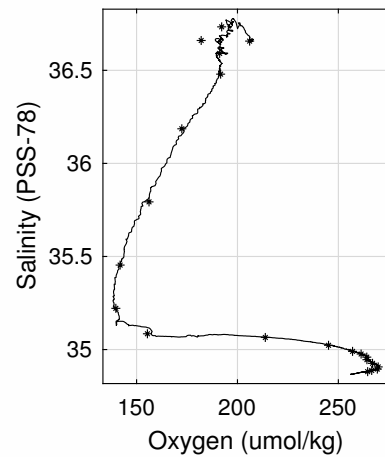
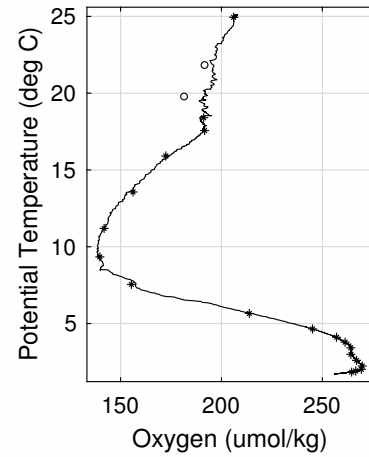
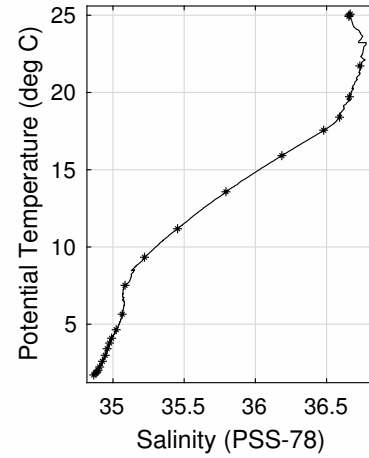
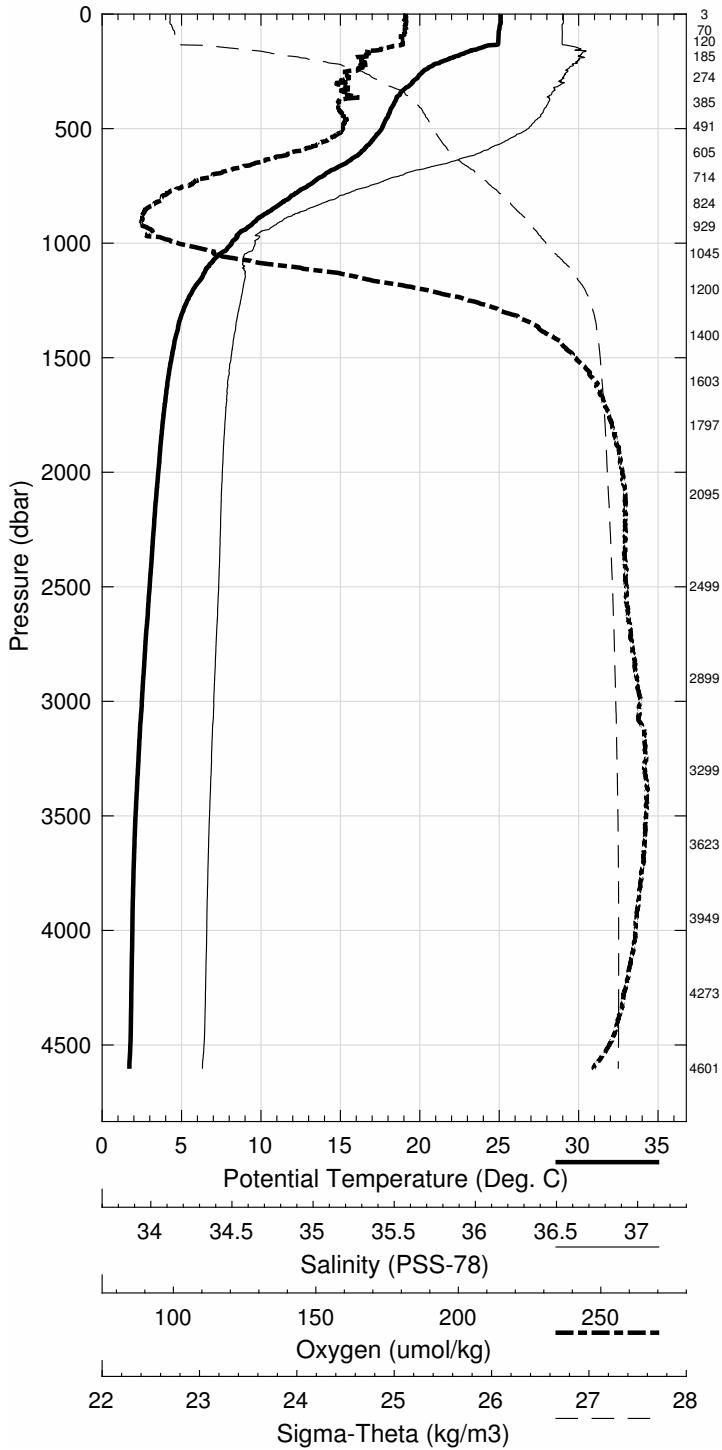
Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 18 (CTD018)  
 Latitude 26.502N Longitude 74.229W  
 21-Mar-2014 06:22Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$	DynHt $\text{m}^2\cdot\text{s}^{-2}$	SigT $\text{kg}\cdot\text{m}^{-3}$
1	25.091	25.091	36.667	207.3	0.003	24.574
10	25.090	25.088	36.666	207.3	0.034	24.574
20	25.097	25.092	36.666	207.1	0.067	24.573
30	25.099	25.092	36.666	207.5	0.101	24.572
50	25.047	25.036	36.659	207.2	0.168	24.585
75	24.988	24.972	36.661	207.2	0.252	24.606
100	24.977	24.956	36.660	206.0	0.336	24.610
125	24.965	24.937	36.660	206.6	0.421	24.615
150	23.738	23.706	36.746	201.4	0.500	25.052
200	21.744	21.705	36.743	195.9	0.634	25.626
250	20.260	20.213	36.686	192.0	0.746	25.992
300	19.593	19.538	36.670	189.6	0.848	26.159
400	18.368	18.298	36.583	189.7	1.033	26.410
500	17.694	17.608	36.491	191.0	1.205	26.511
600	16.433	16.334	36.262	178.4	1.370	26.641
700	14.132	14.028	35.870	157.1	1.522	26.854
800	11.925	11.818	35.540	143.9	1.653	27.043
900	9.816	9.708	35.268	138.7	1.767	27.211
1000	8.264	8.155	35.131	148.0	1.865	27.353
1100	6.836	6.727	35.077	176.1	1.948	27.517
1200	5.861	5.750	35.068	211.3	2.016	27.638
1300	5.182	5.068	35.046	232.6	2.074	27.704
1400	4.790	4.670	35.026	244.6	2.127	27.734
1500	4.496	4.370	35.009	251.4	2.178	27.754
1750	4.009	3.865	34.982	260.1	2.301	27.786
2000	3.700	3.537	34.966	263.6	2.420	27.807
2500	3.198	2.995	34.948	264.7	2.650	27.844
3000	2.745	2.500	34.923	268.3	2.871	27.869
3500	2.394	2.104	34.903	269.7	3.084	27.885
4000	2.245	1.904	34.889	267.1	3.295	27.890
4500	2.174	1.777	34.875	260.2	3.514	27.889

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$
4602	1	2.125	1.717	34.865	-999.0
4274	2	2.208	1.837	34.881	264.5
3949	3	2.243	1.907	34.888	266.5
3624	4	2.322	2.021	34.895	269.3
3300	5	2.503	2.232	34.907	269.7
2900	6	2.838	2.601	34.926	266.9
2499	7	3.194	2.991	34.945	264.2
2096	8	3.584	3.414	34.959	264.1
1798	9	3.927	3.780	34.976	261.3
1604	10	4.227	4.095	34.990	257.0
1401	11	4.763	4.643	35.023	245.1
1200	12	5.758	5.648	35.065	213.8
1046	13	7.628	7.519	35.085	155.4
929	14	9.444	9.336	35.221	139.7
825	15	11.286	11.179	35.454	141.8
714	16	13.675	13.571	35.793	156.2
605	17	16.010	15.912	36.186	172.4
492	18	17.645	17.560	36.480	191.7
386	19	18.472	18.404	36.591	191.2
275	20	19.777	19.726	36.660	182.0
186	21	21.756	21.720	36.734	192.2
121	22	24.951	24.925	36.657	206.0
70	23	25.026	25.011	36.658	-999.0
3	24	25.076	25.075	36.666	-999.0



Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 18 (CTD018)  
 Latitude 26.502 N Longitude 74.229 W  
 21-Mar-2014 06:22 Z

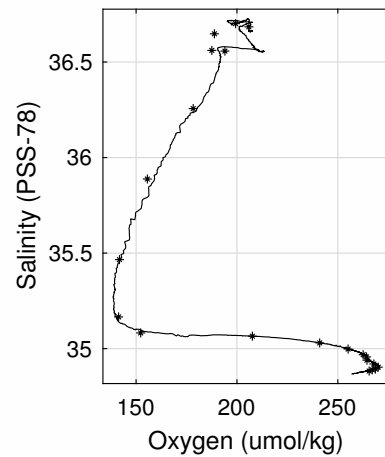
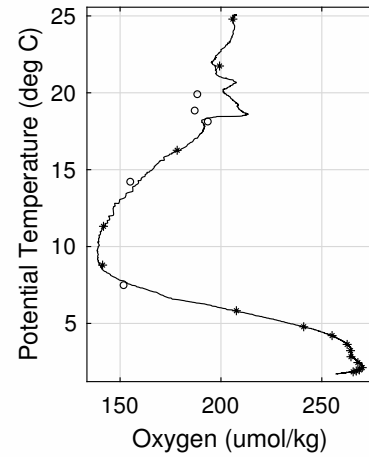
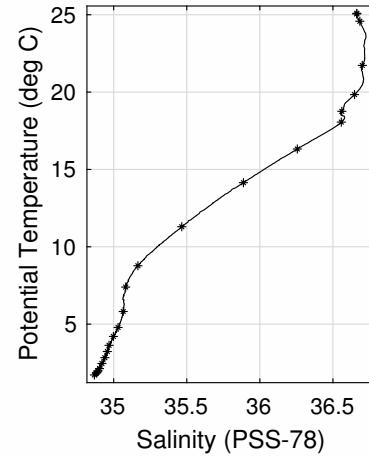
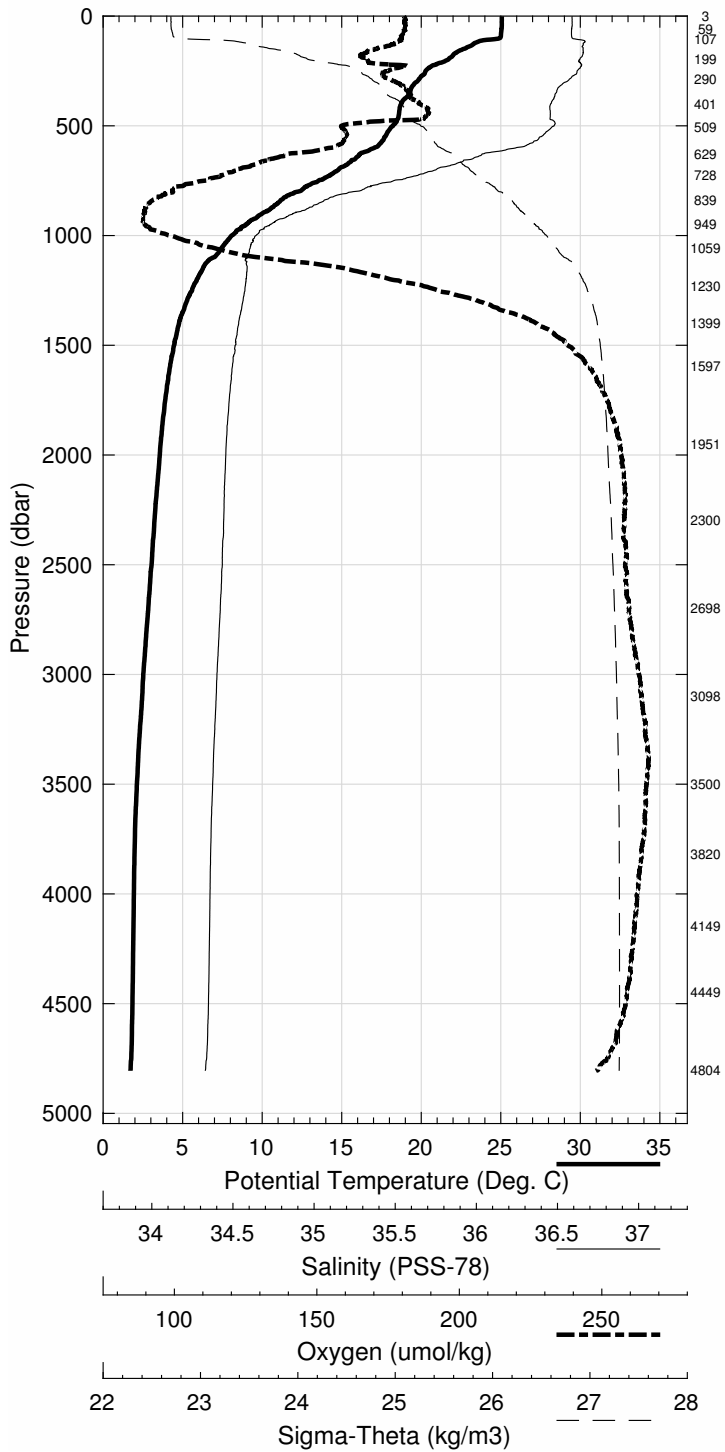


Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 19 (CTD019)  
 Latitude 26.502N Longitude 73.868W  
 21-Mar-2014 12:19Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$	DynHt $\text{m}^2\cdot\text{s}^{-2}$	SigT $\text{kg}\cdot\text{m}^{-3}$
1	25.065	25.065	36.664	206.8	0.003	24.579
10	25.065	25.063	36.663	207.1	0.034	24.579
20	25.069	25.064	36.663	207.2	0.067	24.579
30	25.068	25.062	36.663	207.1	0.101	24.580
50	25.070	25.060	36.662	207.4	0.168	24.580
75	25.038	25.021	36.660	207.0	0.252	24.590
100	24.962	24.940	36.664	206.7	0.337	24.617
125	23.348	23.322	36.718	204.0	0.413	25.143
150	22.669	22.638	36.716	199.4	0.482	25.340
200	21.679	21.640	36.696	197.2	0.610	25.609
250	20.315	20.268	36.687	202.9	0.722	25.978
300	19.761	19.706	36.632	204.6	0.826	26.085
400	18.805	18.733	36.558	210.9	1.023	26.281
500	18.310	18.222	36.574	190.5	1.209	26.423
600	17.143	17.042	36.389	187.8	1.382	26.571
700	14.908	14.800	35.997	163.3	1.539	26.785
800	12.355	12.246	35.590	146.7	1.676	27.000
900	10.102	9.993	35.295	139.1	1.793	27.184
1000	8.202	8.094	35.115	145.8	1.892	27.350
1100	7.030	6.920	35.070	169.4	1.977	27.485
1200	6.004	5.892	35.067	203.5	2.046	27.620
1300	5.367	5.251	35.051	226.4	2.106	27.686
1400	4.896	4.775	35.031	241.3	2.161	27.726
1500	4.587	4.460	35.014	249.4	2.214	27.748
1750	4.049	3.905	34.985	259.6	2.338	27.784
2000	3.725	3.562	34.968	263.4	2.457	27.805
2500	3.251	3.046	34.951	264.3	2.690	27.841
3000	2.769	2.523	34.924	268.0	2.913	27.868
3500	2.411	2.120	34.903	270.0	3.127	27.884
4000	2.275	1.933	34.890	267.6	3.340	27.889
4500	2.244	1.845	34.883	264.5	3.561	27.890

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$
4805	1	2.150	1.717	34.868	-999.0
4449	2	2.244	1.851	34.883	265.6
4149	3	2.265	1.906	34.889	267.1
3821	4	2.299	1.976	34.893	268.6
3500	5	2.415	2.125	34.903	270.0
3099	6	2.710	2.455	34.920	267.9
2698	7	3.053	2.833	34.940	264.5
2301	8	3.417	3.229	34.957	264.2
1951	9	3.790	3.631	34.968	262.6
1597	10	4.336	4.203	34.998	255.1
1400	11	4.904	4.783	35.030	241.0
1231	12	5.930	5.816	35.065	207.7
1059	13	7.504	7.394	35.082	152.3
950	14	8.883	8.776	35.166	141.3
840	15	11.407	11.297	35.466	141.8
729	16	14.255	14.145	35.888	155.6
630	17	16.425	16.322	36.256	178.3
509	18	18.150	18.060	36.557	194.0
402	19	18.830	18.758	36.561	187.5
291	20	19.894	19.840	36.648	188.8
200	21	21.765	21.725	36.701	199.3
107	22	24.603	24.580	36.684	205.9
59	23	25.065	25.052	36.662	-999.0
4	24	25.094	25.093	36.664	-999.0

Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 19 (CTD019)  
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 21-Mar-2014 12:19 Z

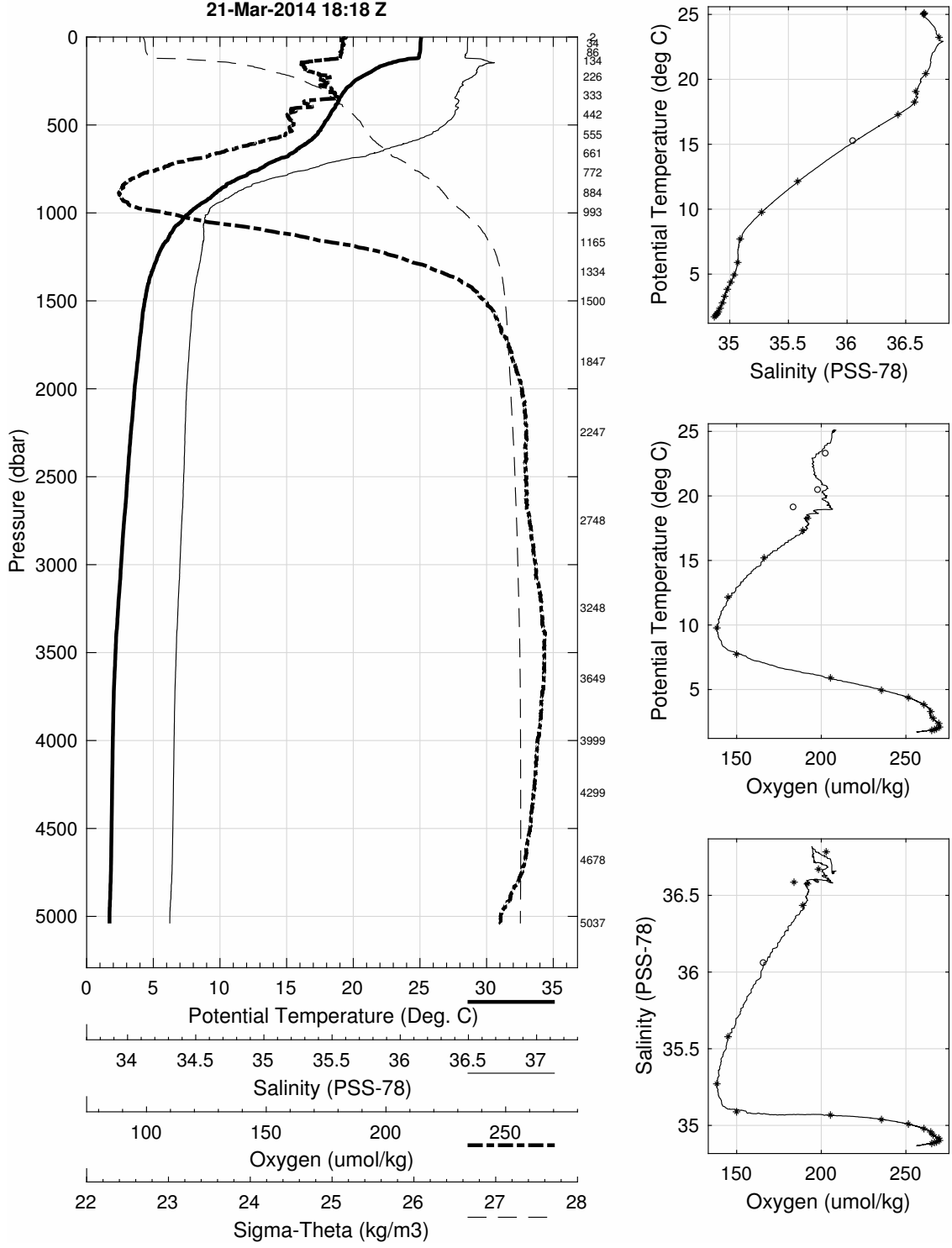


Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 20 (CTD020)  
 Latitude 26.496N Longitude 73.501W  
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Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$	DynHt $\text{m}^2\cdot\text{s}^{-2}$	SigT $\text{kg}\cdot\text{m}^{-3}$
1	25.093	25.093	36.660	208.6	0.003	24.568
10	25.077	25.075	36.658	207.8	0.034	24.572
20	25.060	25.056	36.657	207.7	0.067	24.577
30	25.050	25.043	36.657	207.5	0.101	24.581
50	25.047	25.036	36.657	207.1	0.168	24.583
75	25.038	25.022	36.656	207.2	0.252	24.587
100	24.961	24.939	36.642	207.2	0.337	24.602
125	24.102	24.075	36.740	204.3	0.420	24.937
150	22.680	22.649	36.771	195.3	0.491	25.379
200	21.313	21.274	36.714	198.1	0.615	25.724
250	20.154	20.107	36.638	201.8	0.726	25.983
300	19.475	19.420	36.606	204.5	0.828	26.140
400	18.711	18.640	36.602	196.0	1.018	26.339
500	17.855	17.769	36.519	192.0	1.195	26.493
600	16.660	16.560	36.301	180.9	1.363	26.618
700	14.293	14.188	35.896	159.5	1.516	26.840
800	11.601	11.496	35.496	143.6	1.647	27.070
900	9.577	9.471	35.240	138.6	1.758	27.229
1000	7.842	7.737	35.100	152.6	1.853	27.392
1100	6.569	6.463	35.072	184.0	1.931	27.549
1200	5.716	5.607	35.061	214.0	1.997	27.651
1300	5.176	5.063	35.043	233.3	2.054	27.702
1400	4.761	4.642	35.023	245.0	2.107	27.734
1500	4.485	4.359	35.008	251.6	2.159	27.754
1750	4.097	3.952	34.986	259.0	2.283	27.780
2000	3.756	3.592	34.968	263.1	2.404	27.803
2500	3.267	3.062	34.950	264.7	2.638	27.840
3000	2.828	2.581	34.927	267.5	2.864	27.865
3500	2.456	2.165	34.905	270.1	3.081	27.882
4000	2.304	1.961	34.892	268.2	3.296	27.889
4500	2.269	1.869	34.885	265.7	3.519	27.890
5000	2.174	1.716	34.867	256.7	3.752	27.887

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$
5037	1	2.178	1.715	34.868	-999.0
4678	2	2.257	1.836	34.882	265.2
4299	3	2.283	1.906	34.889	266.9
3999	4	2.309	1.966	34.892	268.1
3649	5	2.399	2.093	34.902	269.8
3248	6	2.640	2.372	34.917	269.4
2749	7	3.012	2.787	34.938	266.0
2247	8	3.474	3.291	34.957	264.7
1847	9	3.982	3.829	34.979	260.6
1500	10	4.502	4.376	35.009	251.5
1334	11	5.057	4.941	35.038	235.6
1166	12	6.007	5.898	35.068	205.4
993	13	7.812	7.708	35.089	149.9
884	14	9.872	9.766	35.271	138.3
773	15	12.245	12.140	35.578	144.9
661	16	15.312	15.208	36.056	166.2
556	17	17.383	17.288	36.434	189.0
443	18	18.330	18.251	36.575	191.8
333	19	19.126	19.066	36.586	183.9
226	20	20.481	20.438	36.671	198.3
134	21	23.265	23.237	36.784	202.9
86	22	25.027	25.008	36.652	-999.0
34	23	25.052	25.045	36.656	-999.0
2	24	25.115	25.115	36.658	-999.0

Abaco March - April 2014 R/V Atlantic Explorer  
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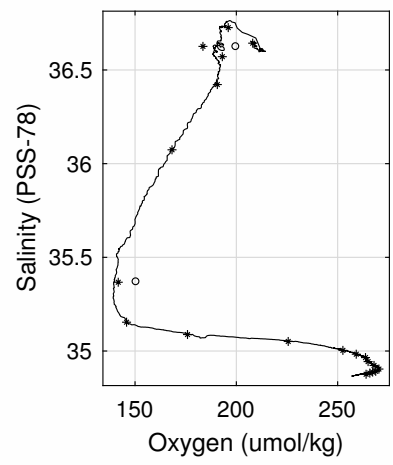
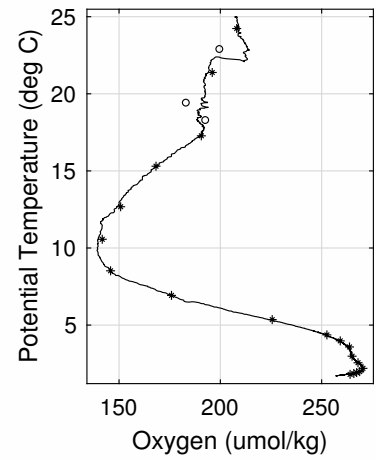
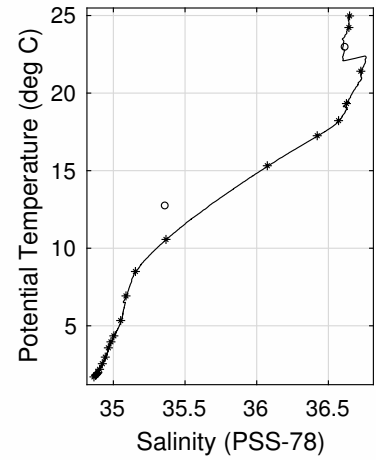
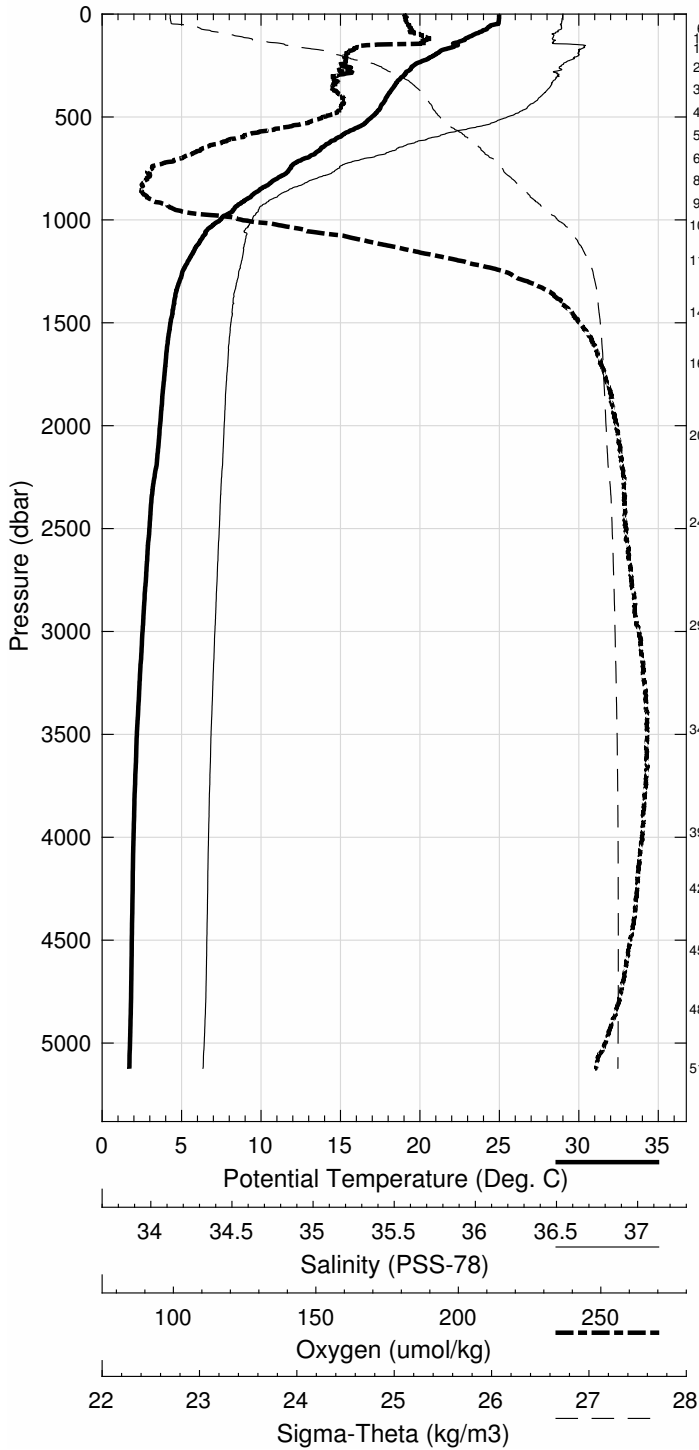


Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 21 (CTD021)  
 Latitude 26.499N Longitude 73.134W  
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Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$	DynHt $\text{m}^2\cdot\text{s}^{-2}$	SigT $\text{kg}\cdot\text{m}^{-3}$
1	24.986	24.986	36.651	207.4	0.003	24.594
10	24.987	24.985	36.650	207.9	0.033	24.594
20	24.989	24.985	36.649	208.0	0.067	24.593
30	24.976	24.969	36.647	207.9	0.100	24.596
50	24.747	24.736	36.639	208.1	0.167	24.661
75	24.164	24.148	36.638	209.3	0.247	24.838
100	23.416	23.396	36.605	211.5	0.323	25.036
125	22.855	22.829	36.602	213.2	0.395	25.199
150	22.414	22.384	36.752	199.4	0.462	25.441
200	20.928	20.889	36.728	191.8	0.581	25.841
250	19.648	19.602	36.643	190.8	0.686	26.121
300	19.022	18.968	36.629	190.2	0.782	26.275
400	17.993	17.923	36.541	191.4	0.958	26.472
500	17.052	16.968	36.376	186.4	1.125	26.578
600	14.916	14.824	36.000	164.5	1.280	26.782
700	12.890	12.792	35.675	149.9	1.418	26.958
800	11.095	10.993	35.424	140.9	1.539	27.107
900	9.180	9.077	35.205	141.9	1.646	27.267
1000	7.548	7.445	35.110	165.4	1.736	27.442
1100	6.272	6.168	35.076	197.1	1.809	27.591
1200	5.508	5.401	35.057	222.4	1.870	27.673
1300	4.977	4.865	35.035	239.5	1.925	27.719
1400	4.645	4.527	35.015	248.5	1.977	27.741
1500	4.424	4.298	35.004	252.9	2.028	27.758
1750	4.071	3.926	34.985	259.3	2.150	27.782
2000	3.809	3.644	34.971	262.4	2.272	27.800
2500	3.176	2.973	34.947	264.9	2.504	27.845
3000	2.792	2.545	34.925	268.2	2.726	27.866
3500	2.478	2.186	34.906	270.4	2.943	27.881
4000	2.320	1.977	34.893	269.0	3.160	27.888
4500	2.267	1.867	34.885	265.8	3.383	27.890
5000	2.213	1.753	34.872	259.5	3.617	27.888

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$
5123	1	2.180	1.706	34.865	-999.0
4839	2	2.244	1.804	34.876	264.0
4548	3	2.266	1.860	34.882	265.9
4249	4	2.292	1.921	34.888	267.3
3974	5	2.323	1.982	34.892	268.8
3474	6	2.483	2.194	34.904	270.4
2973	7	2.800	2.556	34.923	267.9
2472	8	3.182	2.981	34.944	265.0
2049	9	3.748	3.579	34.965	263.7
1700	10	4.105	3.965	34.983	259.2
1450	11	4.472	4.351	35.003	252.6
1198	12	5.446	5.339	35.051	225.6
1028	13	7.029	6.926	35.088	175.9
919	14	8.601	8.499	35.154	145.8
809	15	10.668	10.567	35.367	141.7
699	16	12.781	12.684	35.366	150.8
591	17	15.411	15.318	36.074	168.2
479	18	17.333	17.252	36.422	190.6
368	19	18.289	18.224	36.571	193.1
260	20	19.374	19.326	36.626	183.5
170	21	21.443	21.409	36.726	196.0
120	22	22.937	22.913	36.621	200.0
70	23	24.241	24.226	36.643	208.1
3	24	24.976	24.975	36.648	-999.0

Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 21 (CTD021)  
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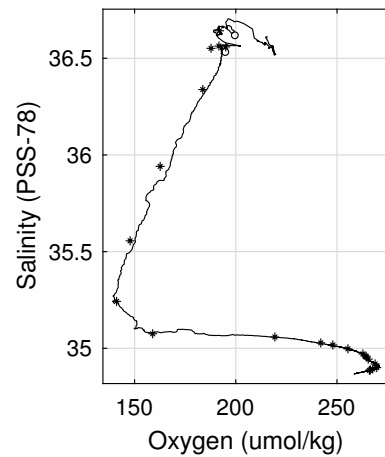
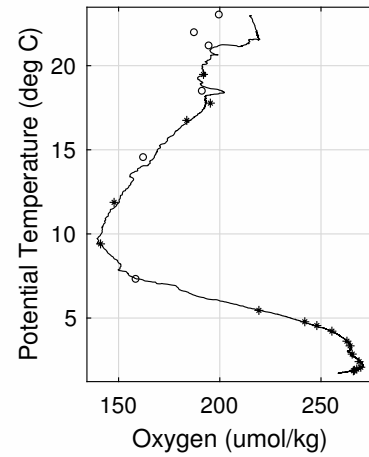
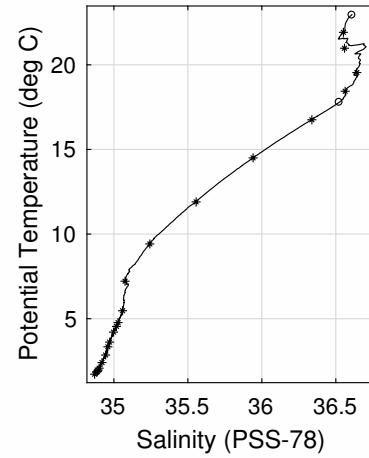
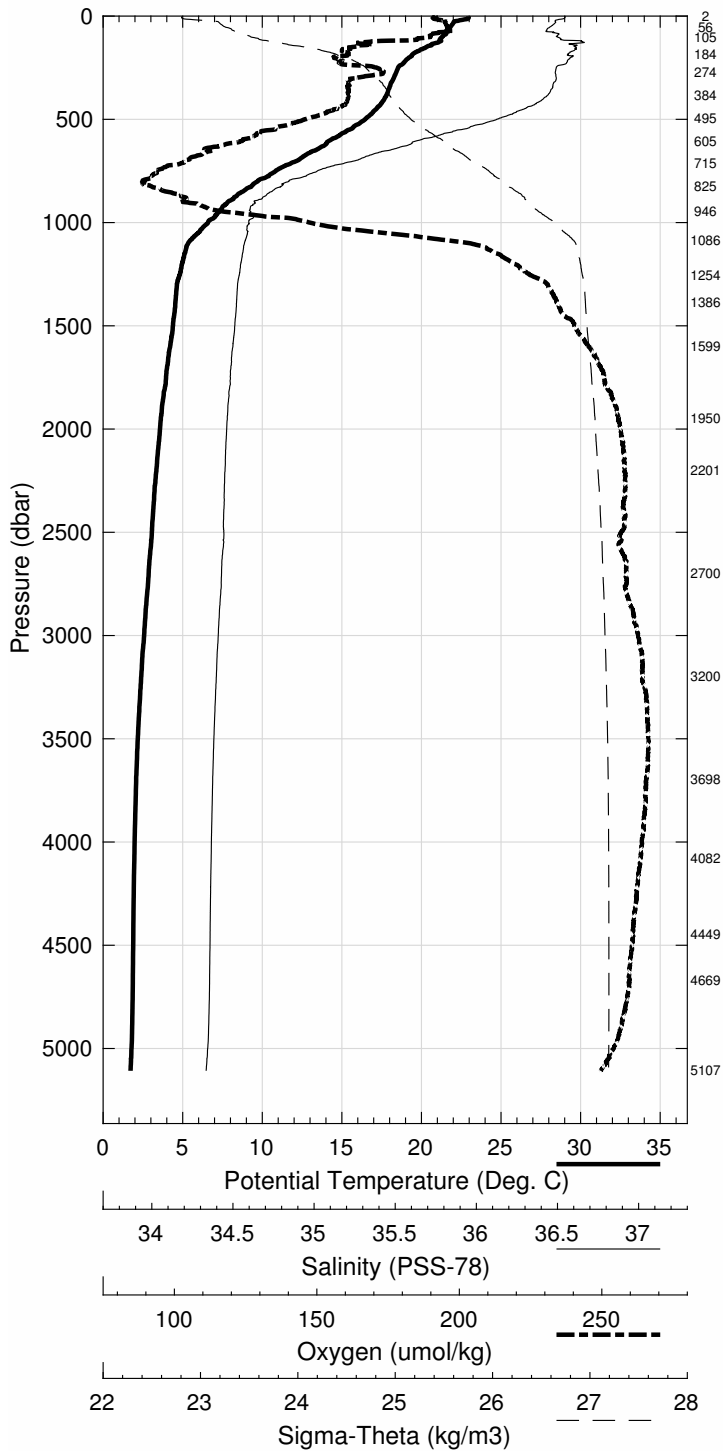
Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 22 (CTD022)  
 Latitude 26.501N Longitude 72.770W  
 22-Mar-2014 06:23Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$	DynHt $\text{m}^2\cdot\text{s}^{-2}$	SigT $\text{kg}\cdot\text{m}^{-3}$
1	22.972	22.972	36.612	215.5	0.003	25.165
10	22.960	22.958	36.608	215.0	0.028	25.166
20	22.421	22.417	36.564	217.2	0.055	25.289
30	22.031	22.025	36.565	217.9	0.082	25.401
50	21.858	21.848	36.542	218.8	0.133	25.433
75	21.532	21.517	36.518	219.1	0.196	25.507
100	21.335	21.315	36.570	214.5	0.257	25.603
125	21.143	21.119	36.696	198.1	0.316	25.753
150	20.347	20.319	36.665	193.8	0.371	25.947
200	19.269	19.233	36.637	189.2	0.470	26.213
250	18.576	18.532	36.568	200.4	0.561	26.340
300	18.316	18.263	36.568	195.5	0.648	26.408
400	17.751	17.682	36.506	192.7	0.817	26.505
500	16.525	16.443	36.278	181.5	0.980	26.628
600	14.382	14.292	35.907	165.4	1.130	26.826
700	12.298	12.203	35.594	151.0	1.262	27.011
800	9.811	9.716	35.269	139.5	1.375	27.211
900	7.933	7.838	35.103	150.0	1.469	27.379
1000	6.684	6.587	35.075	183.0	1.548	27.535
1100	5.440	5.343	35.054	224.5	1.610	27.677
1200	5.065	4.962	35.035	236.0	1.664	27.708
1300	4.747	4.637	35.020	244.7	1.716	27.733
1400	4.648	4.530	35.015	247.2	1.767	27.741
1500	4.510	4.384	35.007	251.6	1.818	27.750
1750	4.097	3.953	34.986	259.1	1.943	27.780
2000	3.738	3.574	34.968	263.4	2.064	27.804
2500	3.266	3.061	34.954	263.7	2.296	27.842
3000	2.822	2.575	34.927	268.1	2.521	27.865
3500	2.468	2.177	34.905	270.6	2.738	27.882
4000	2.321	1.977	34.893	269.0	2.954	27.888
4500	2.290	1.890	34.886	266.7	3.178	27.890
5000	2.243	1.782	34.875	261.8	3.414	27.889

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$
5107	1	2.195	1.723	34.870	-999.0
4670	2	2.287	1.865	34.886	266.0
4449	3	2.289	1.894	34.888	266.5
4082	4	2.316	1.963	34.893	267.7
3699	5	2.389	2.078	34.900	269.6
3200	6	2.673	2.409	34.919	268.8
2700	7	3.077	2.856	34.944	265.4
2201	8	3.519	3.339	34.959	264.4
1950	9	3.777	3.617	34.971	262.8
1600	10	4.343	4.209	34.997	255.4
1387	11	4.662	4.545	35.017	247.9
1255	12	4.879	4.772	35.028	242.0
1086	13	5.568	5.471	35.059	219.3
946	14	7.312	7.216	35.075	158.9
825	15	9.514	9.418	35.243	141.1
716	16	11.997	11.901	35.556	147.8
606	17	14.593	14.501	35.941	162.6
496	18	16.836	16.753	36.338	183.7
385	19	17.816	17.750	36.527	195.3
275	20	18.486	18.437	36.563	191.7
185	21	19.577	19.543	36.642	192.0
105	22	21.000	20.980	36.559	195.0
57	23	21.930	21.919	36.551	187.8
3	24	22.900	22.900	36.613	200.1



Abaco March - April 2014 R/V Atlantic Explorer  
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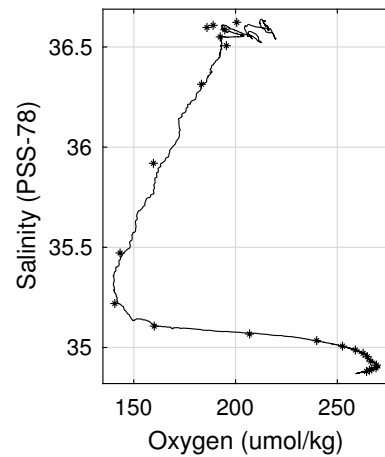
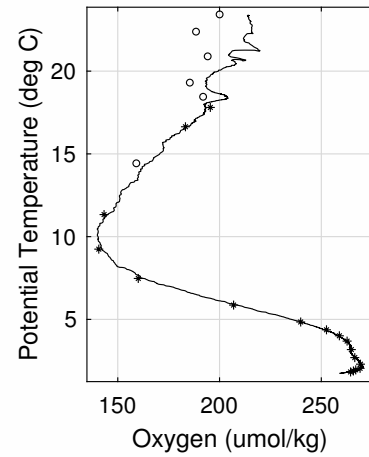
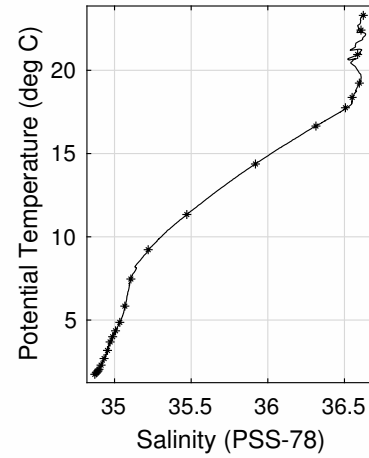
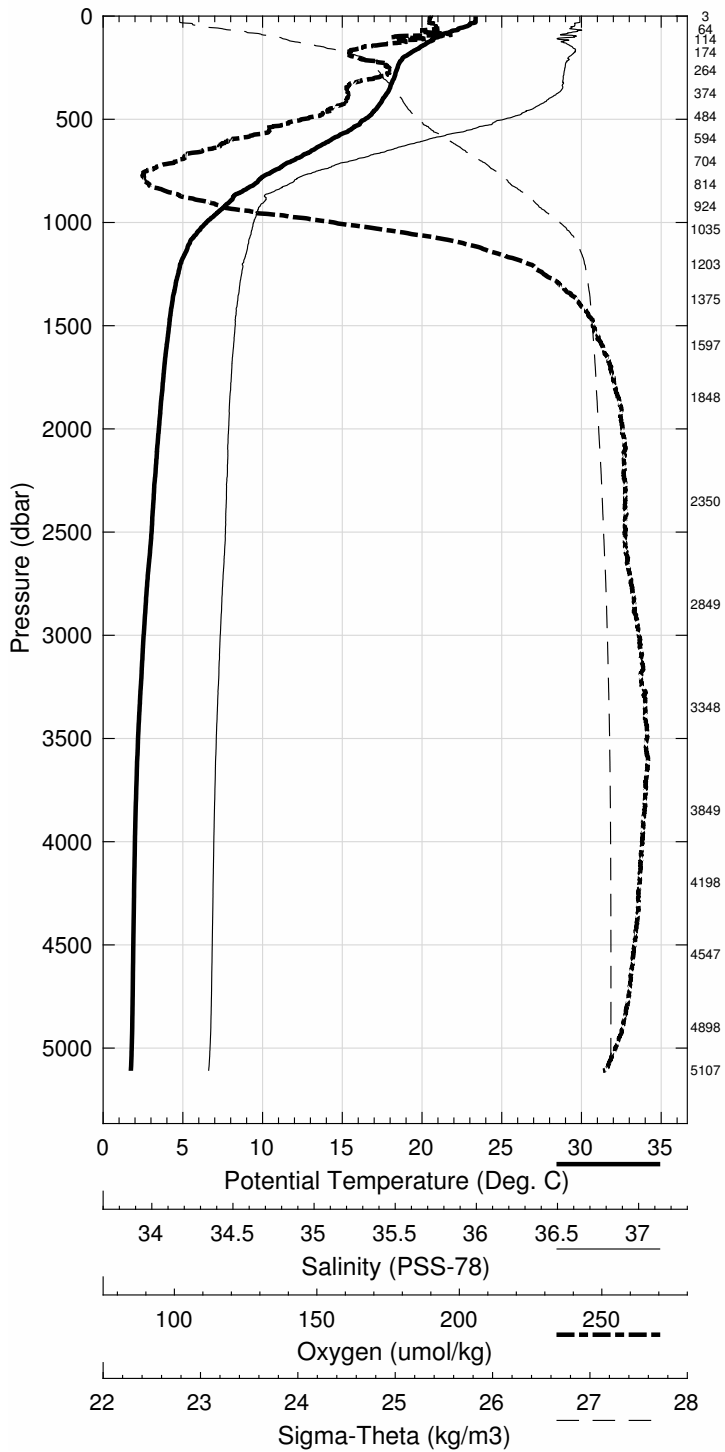


Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 23 (CTD023)  
 Latitude 26.502N Longitude 72.378W  
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Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$	DynHt $\text{m}^2\cdot\text{s}^{-2}$	SigT $\text{kg}\cdot\text{m}^{-3}$
1	23.363	23.362	36.630	214.4	0.003	25.065
10	23.363	23.361	36.629	214.0	0.029	25.064
20	23.364	23.360	36.630	214.0	0.058	25.065
30	23.364	23.358	36.630	214.1	0.087	25.066
50	22.791	22.781	36.601	216.1	0.143	25.212
75	21.829	21.814	36.613	212.1	0.209	25.496
100	21.068	21.049	36.603	204.9	0.270	25.701
125	20.457	20.434	36.542	208.1	0.326	25.822
150	19.908	19.880	36.594	197.0	0.380	26.010
200	18.867	18.831	36.575	195.4	0.476	26.269
250	18.512	18.467	36.558	203.6	0.565	26.349
300	18.301	18.249	36.551	199.9	0.652	26.398
400	17.615	17.546	36.482	192.8	0.821	26.520
500	16.510	16.428	36.271	181.1	0.984	26.626
600	14.381	14.291	35.904	163.3	1.134	26.824
700	12.007	11.913	35.550	149.2	1.265	27.033
800	9.810	9.715	35.275	140.5	1.376	27.215
900	8.022	7.927	35.132	156.8	1.469	27.389
1000	6.568	6.472	35.083	189.4	1.546	27.556
1100	5.533	5.436	35.059	222.7	1.608	27.670
1200	4.945	4.843	35.030	239.6	1.662	27.717
1300	4.658	4.549	35.018	247.4	1.713	27.741
1400	4.426	4.310	35.005	253.0	1.762	27.757
1500	4.264	4.141	34.996	256.2	1.810	27.768
1750	3.922	3.779	34.977	261.5	1.930	27.791
2000	3.658	3.495	34.965	263.7	2.047	27.809
2500	3.244	3.039	34.950	264.5	2.277	27.841
3000	2.784	2.538	34.925	268.0	2.500	27.867
3500	2.481	2.189	34.906	270.2	2.717	27.881
4000	2.337	1.993	34.894	268.9	2.935	27.888
4500	2.293	1.892	34.887	267.0	3.159	27.890
5000	2.253	1.792	34.876	262.0	3.394	27.889

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$
5108	1	2.215	1.741	34.871	-999.0
4899	2	2.273	1.824	34.881	264.4
4548	3	2.290	1.883	34.887	265.8
4198	4	2.314	1.948	34.892	266.9
3850	5	2.369	2.041	34.898	269.0
3349	6	2.570	2.292	34.912	269.2
2849	7	2.923	2.690	34.932	266.4
2350	8	3.368	3.177	34.954	264.7
1848	9	3.835	3.685	34.971	262.7
1598	10	4.131	4.000	34.988	258.9
1375	11	4.468	4.354	35.007	252.5
1204	12	4.964	4.862	35.034	239.9
1035	13	5.932	5.837	35.067	206.9
925	14	7.559	7.464	35.107	160.1
815	15	9.319	9.225	35.220	140.7
705	16	11.431	11.340	35.472	143.3
594	17	14.463	14.373	35.919	159.7
484	18	16.732	16.651	36.314	183.3
375	19	17.816	17.751	36.506	195.5
264	20	18.419	18.372	36.550	192.5
175	21	19.263	19.231	36.597	186.0
114	22	20.971	20.949	36.586	194.7
64	23	22.428	22.415	36.608	189.0
4	24	23.300	23.300	36.623	200.6

Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 23 (CTD023)  
 Latitude 26.502 N Longitude 72.378 W  
 22-Mar-2014 12:36 Z

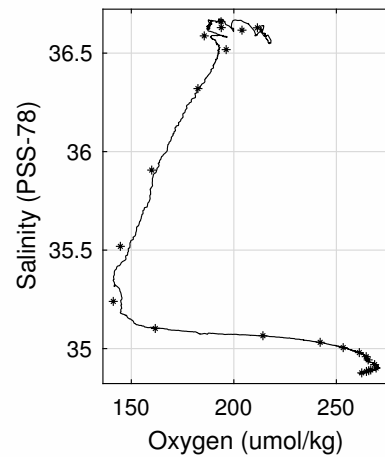
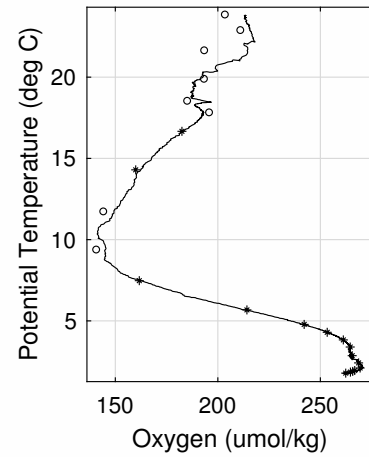
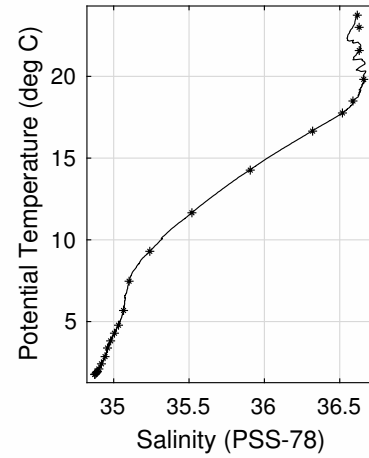
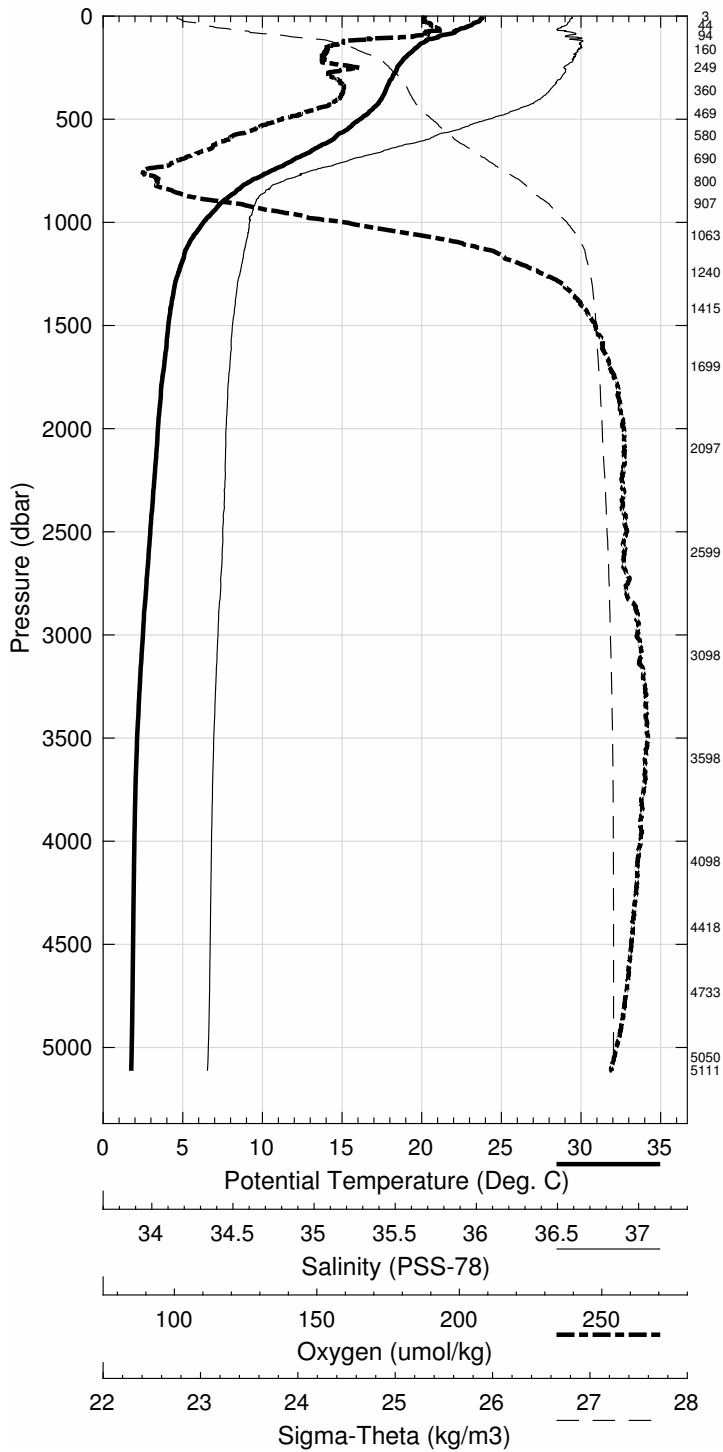


Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 24 (CTD024)  
 Latitude 26.503N Longitude 71.988W  
 22-Mar-2014 22:21Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$	DynHt $\text{m}^2\cdot\text{s}^{-2}$	SigT $\text{kg}\cdot\text{m}^{-3}$
1	23.792	23.792	36.621	213.7	0.003	24.932
10	23.788	23.786	36.619	213.6	0.030	24.931
20	23.661	23.656	36.610	213.6	0.060	24.963
30	23.439	23.433	36.603	213.5	0.090	25.023
50	22.893	22.883	36.576	215.5	0.147	25.163
75	22.058	22.043	36.594	214.2	0.215	25.418
100	21.029	21.010	36.588	210.8	0.276	25.701
125	20.207	20.184	36.665	192.3	0.330	25.984
150	19.722	19.694	36.661	188.9	0.380	26.111
200	19.005	18.969	36.628	187.5	0.475	26.274
250	18.504	18.460	36.581	196.6	0.563	26.368
300	18.195	18.143	36.569	190.2	0.649	26.439
400	17.550	17.481	36.470	191.5	0.816	26.527
500	16.203	16.122	36.220	177.1	0.976	26.658
600	14.453	14.363	35.917	162.8	1.124	26.819
700	11.985	11.891	35.550	150.0	1.255	27.037
800	9.348	9.256	35.237	144.9	1.364	27.262
900	7.572	7.479	35.104	161.8	1.454	27.433
1000	6.380	6.286	35.074	193.0	1.527	27.574
1100	5.498	5.401	35.057	223.0	1.588	27.673
1200	5.020	4.917	35.038	237.9	1.642	27.715
1300	4.617	4.509	35.016	249.0	1.692	27.744
1400	4.399	4.284	35.006	253.5	1.741	27.761
1500	4.218	4.095	34.993	257.2	1.789	27.770
1750	3.870	3.728	34.974	261.9	1.908	27.794
2000	3.600	3.439	34.962	264.7	2.024	27.813
2500	3.164	2.961	34.946	265.2	2.251	27.846
3000	2.745	2.500	34.923	268.0	2.471	27.869
3500	2.425	2.134	34.903	270.7	2.685	27.883
4000	2.304	1.961	34.892	268.8	2.899	27.888
4500	2.280	1.880	34.886	266.5	3.123	27.890
5000	2.254	1.793	34.877	262.7	3.357	27.889

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$
5111	1	2.237	1.763	34.874	-999.0
5051	2	2.251	1.784	34.877	262.4
4734	3	2.277	1.849	34.884	264.7
4418	4	2.284	1.893	34.888	265.8
4099	5	2.300	1.946	34.892	266.8
3599	6	2.401	2.100	34.902	269.4
3099	7	2.667	2.413	34.919	268.7
2599	8	3.066	2.855	34.943	265.5
2098	9	3.553	3.382	34.959	264.6
1700	10	3.957	3.819	34.980	261.2
1416	11	4.404	4.287	35.005	253.3
1241	12	4.882	4.777	35.032	242.1
1064	13	5.773	5.677	35.065	214.2
908	14	7.562	7.468	35.102	161.7
800	15	9.390	9.297	35.240	141.2
690	16	11.746	11.655	35.519	144.7
580	17	14.352	14.265	35.906	159.9
470	18	16.729	16.651	36.320	182.5
360	19	17.823	17.761	36.518	196.3
250	20	18.538	18.494	36.588	185.6
160	21	19.847	19.817	36.659	193.8
94	22	21.600	21.582	36.630	193.9
45	23	23.010	23.000	36.629	211.5
3	24	23.744	23.744	36.617	204.0

Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 24 (CTD024)  
 Latitude 26.503 N Longitude 71.988 W  
 22-Mar-2014 22:21 Z

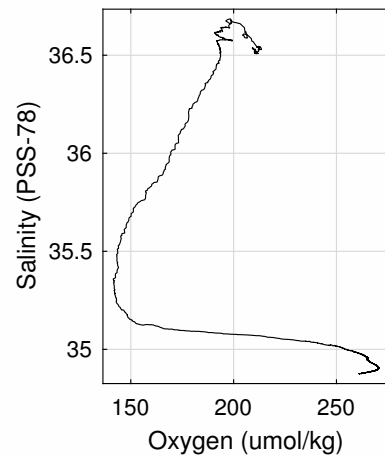
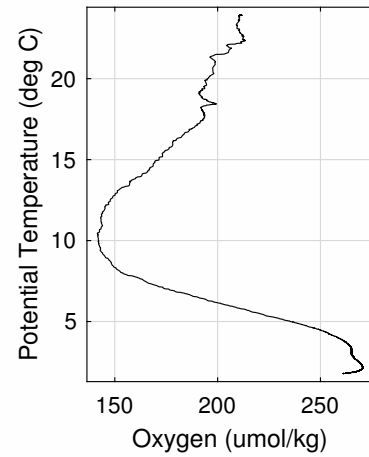
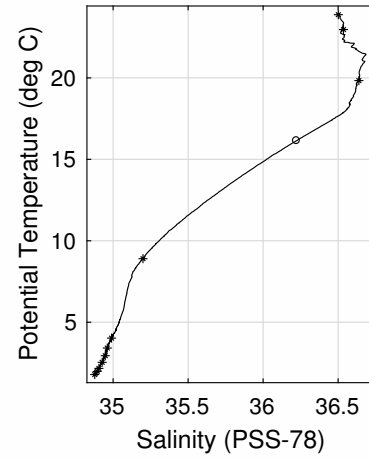
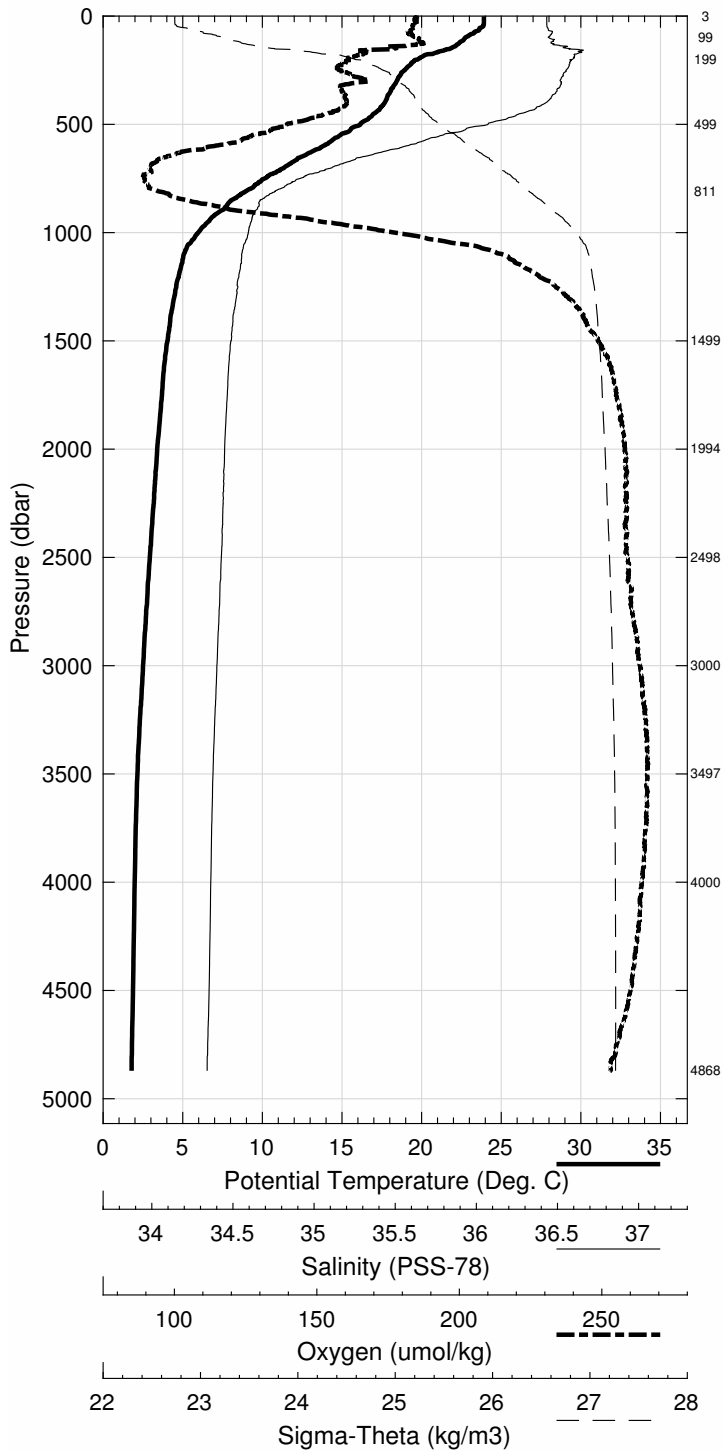


Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 25 (CTD025)  
 Latitude 26.501N Longitude 76.094W  
 26-Mar-2014 00:50Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$	DynHt $\text{m}^2\cdot\text{s}^{-2}$	SigT $\text{kg}\cdot\text{m}^{-3}$
1	23.912	23.912	36.510	211.5	0.003	24.812
10	23.915	23.913	36.509	211.0	0.031	24.810
20	23.917	23.912	36.509	210.7	0.063	24.810
30	23.918	23.912	36.509	210.8	0.094	24.811
50	23.827	23.816	36.511	210.2	0.157	24.840
75	23.326	23.311	36.535	209.2	0.233	25.008
100	22.746	22.726	36.520	212.1	0.306	25.167
125	22.386	22.360	36.529	213.5	0.375	25.278
150	21.828	21.798	36.621	205.9	0.441	25.507
200	19.804	19.767	36.633	194.3	0.551	26.070
250	18.962	18.917	36.601	191.9	0.647	26.267
300	18.492	18.439	36.574	199.4	0.737	26.368
400	17.749	17.680	36.505	193.7	0.907	26.505
500	16.242	16.161	36.226	178.5	1.069	26.654
600	13.901	13.813	35.831	159.9	1.213	26.869
700	11.464	11.373	35.476	143.2	1.338	27.078
800	9.248	9.156	35.218	144.3	1.445	27.264
900	7.453	7.362	35.104	166.5	1.532	27.450
1000	6.052	5.960	35.073	206.0	1.601	27.616
1100	5.159	5.064	35.042	233.5	1.657	27.701
1200	4.850	4.749	35.028	242.9	1.709	27.727
1300	4.569	4.461	35.016	250.3	1.759	27.749
1400	4.331	4.216	35.000	254.4	1.807	27.763
1500	4.161	4.039	34.990	257.9	1.855	27.774
1750	3.837	3.695	34.973	262.6	1.971	27.796
2000	3.555	3.394	34.960	264.8	2.086	27.815
2500	3.134	2.931	34.944	265.5	2.312	27.847
3000	2.750	2.505	34.922	268.7	2.532	27.867
3500	2.445	2.154	34.904	270.6	2.747	27.882
4000	2.323	1.980	34.893	269.1	2.963	27.888
4500	2.276	1.876	34.885	266.1	3.187	27.889

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$
4869	2	2.233	1.789	34.877	-999.0
4001	4	2.321	1.978	34.894	-999.0
3498	6	2.456	2.165	34.905	-999.0
3001	8	2.782	2.536	34.927	-999.0
2498	10	3.145	2.943	34.948	-999.0
1995	12	3.575	3.415	34.961	-999.0
1499	13	4.147	4.025	34.989	-999.0
811	15	8.991	8.900	35.199	-999.0
500	17	16.190	16.109	36.226	-999.0
199	19	19.870	19.833	36.638	-999.0
100	21	22.989	22.968	36.536	-999.0
3	23	23.880	23.880	36.501	-999.0

Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 25 (CTD025)  
 Latitude 26.501 N Longitude 76.094 W  
 26-Mar-2014 00:50 Z



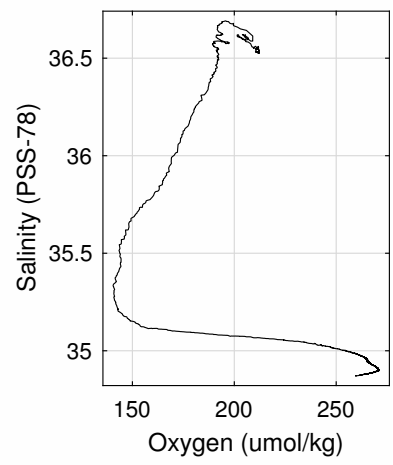
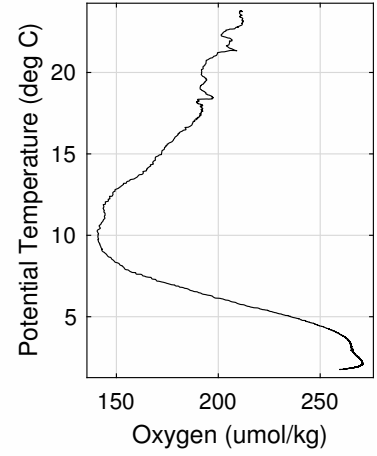
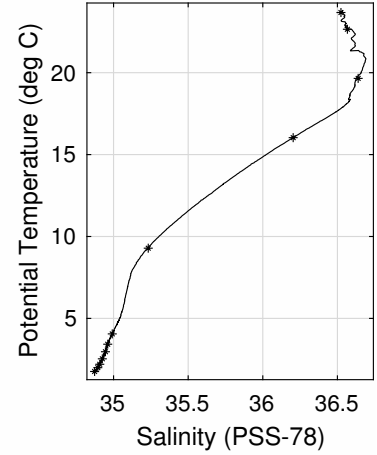
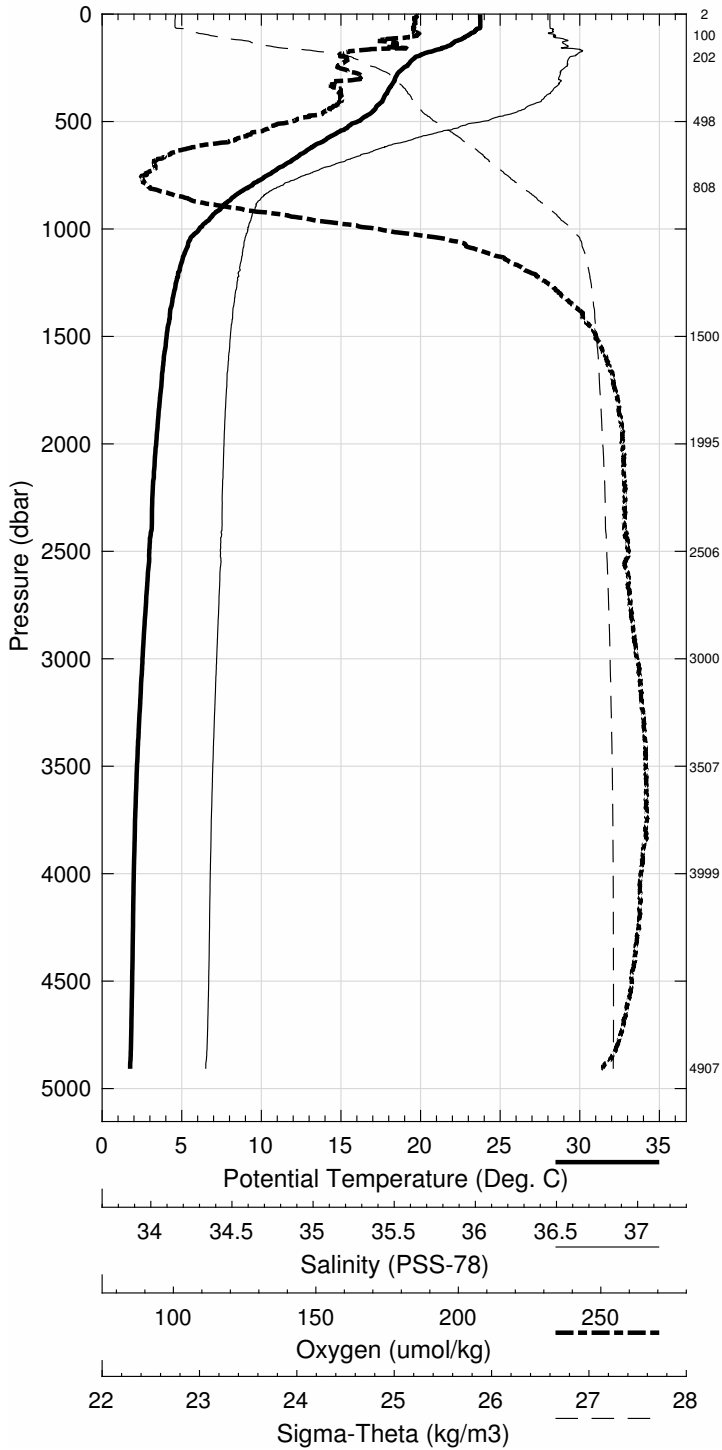
Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 26 (CTD026)  
 Latitude 26.490N Longitude 76.467W  
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Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$	DynHt $\text{m}^2\cdot\text{s}^{-2}$	SigT $\text{kg}\cdot\text{m}^{-3}$
1	23.741	23.741	36.534	211.6	0.003	24.881
10	23.743	23.741	36.533	211.7	0.031	24.880
20	23.750	23.746	36.533	210.7	0.061	24.878
30	23.758	23.752	36.533	211.1	0.092	24.876
50	23.760	23.750	36.533	211.1	0.154	24.877
75	23.466	23.450	36.545	210.7	0.230	24.974
100	23.013	22.992	36.559	211.8	0.304	25.119
125	22.268	22.243	36.611	201.5	0.373	25.373
150	21.708	21.678	36.618	204.9	0.438	25.538
200	19.713	19.676	36.629	193.4	0.548	26.091
250	18.992	18.947	36.604	191.6	0.645	26.261
300	18.452	18.399	36.575	197.2	0.734	26.379
400	17.689	17.620	36.492	192.4	0.904	26.509
500	16.136	16.055	36.206	179.0	1.065	26.663
600	13.748	13.660	35.806	160.7	1.209	26.882
700	11.598	11.507	35.493	144.0	1.335	27.066
800	9.415	9.323	35.231	142.3	1.443	27.247
900	7.586	7.493	35.111	163.7	1.532	27.436
1000	6.196	6.102	35.075	201.7	1.603	27.599
1100	5.347	5.250	35.050	227.9	1.661	27.686
1200	4.915	4.813	35.031	240.6	1.714	27.721
1300	4.608	4.499	35.014	248.6	1.764	27.744
1400	4.368	4.253	35.001	254.5	1.813	27.760
1500	4.170	4.047	34.990	257.9	1.861	27.774
1750	3.827	3.685	34.971	262.8	1.978	27.796
2000	3.555	3.394	34.960	264.6	2.093	27.815
2500	3.163	2.960	34.942	266.2	2.319	27.843
3000	2.779	2.534	34.924	268.5	2.541	27.866
3500	2.480	2.188	34.905	270.6	2.758	27.881
4000	2.331	1.988	34.893	269.3	2.975	27.887
4500	2.287	1.886	34.886	267.1	3.200	27.889

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$
4907	2	2.208	1.760	34.873	-999.0
4000	4	2.335	1.992	34.894	-999.0
3507	6	2.493	2.200	34.908	-999.0
3000	8	2.779	2.533	34.925	-999.0
2507	10	3.168	2.964	34.946	-999.0
1995	12	3.585	3.424	34.961	-999.0
1500	13	4.176	4.054	34.991	-999.0
808	15	9.380	9.286	35.232	-999.0
499	17	16.114	16.034	36.204	-999.0
203	19	19.690	19.652	36.639	-999.0
100	21	22.672	22.652	36.567	-999.0
3	23	23.674	23.673	36.524	-999.0



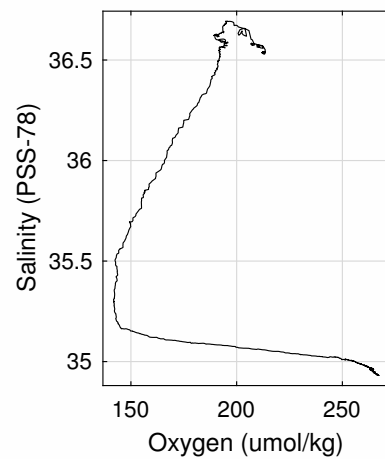
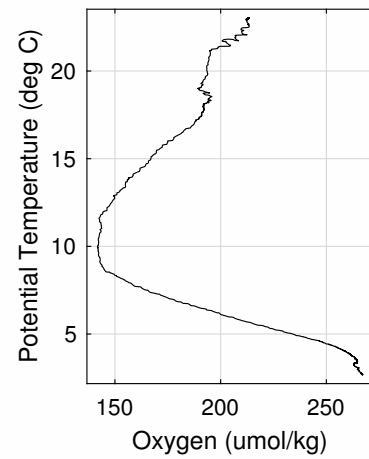
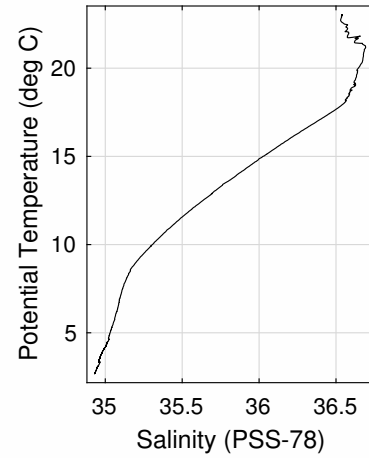
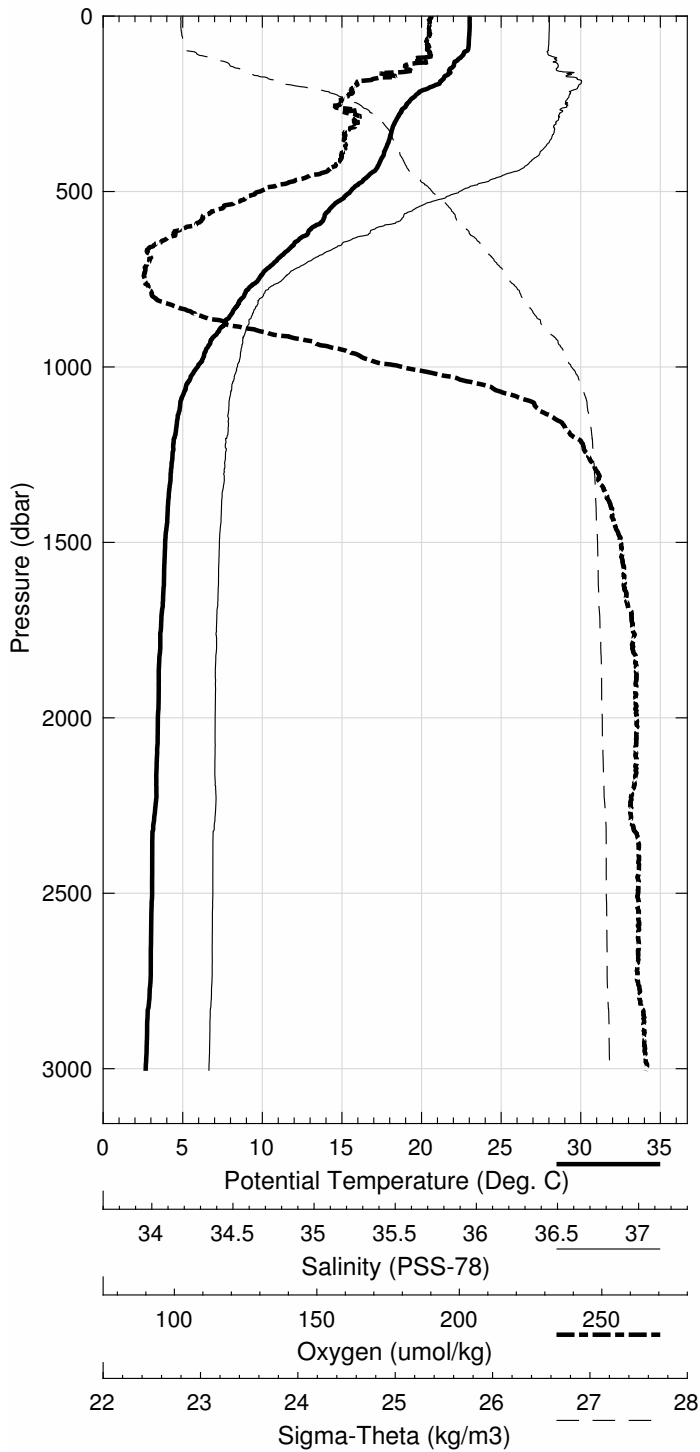
Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 26 (CTD026)  
 Latitude 26.490 N Longitude 76.467 W  
 27-Mar-2014 03:53 Z



Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 27 (CTD027)  
 Latitude 26.502N Longitude 76.744W  
 28-Mar-2014 03:41Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$	DynHt $\text{m}^2\cdot\text{s}^{-2}$	SigT $\text{kg}\cdot\text{m}^{-3}$
1	23.023	23.023	36.542	213.4	0.003	25.097
10	23.026	23.024	36.540	213.4	0.029	25.095
20	23.025	23.021	36.540	213.2	0.057	25.096
30	23.030	23.024	36.541	213.1	0.086	25.096
50	23.011	23.001	36.540	212.8	0.143	25.101
75	22.981	22.966	36.538	212.3	0.215	25.111
100	22.836	22.816	36.533	212.3	0.287	25.150
125	22.302	22.276	36.575	210.3	0.356	25.337
150	21.819	21.789	36.575	207.5	0.422	25.475
200	20.751	20.712	36.679	194.5	0.542	25.851
250	19.110	19.065	36.615	190.9	0.643	26.239
300	18.413	18.360	36.573	194.5	0.733	26.387
400	17.636	17.567	36.483	191.0	0.902	26.515
500	15.599	15.520	36.115	170.8	1.061	26.716
600	13.317	13.232	35.741	152.9	1.200	26.920
700	10.898	10.810	35.400	143.3	1.320	27.122
800	8.907	8.817	35.185	144.2	1.422	27.292
900	7.309	7.219	35.104	171.6	1.507	27.470
1000	6.018	5.926	35.065	206.3	1.575	27.613
1100	4.943	4.850	35.026	238.7	1.631	27.713
1200	4.592	4.493	35.016	249.0	1.680	27.746
1300	4.366	4.260	35.003	254.8	1.728	27.761
1400	4.175	4.062	34.990	258.2	1.774	27.772
1500	4.018	3.897	34.981	260.5	1.821	27.782
1750	3.762	3.622	34.966	263.7	1.937	27.798
2000	3.601	3.439	34.960	264.4	2.051	27.812
2500	3.283	3.077	34.949	264.9	2.281	27.838
3000	2.924	2.675	34.931	267.0	2.512	27.859

Abaco March - April 2014 R/V Atlantic Explorer  
CTD Station 27 (CTD027)  
Latitude 26.502 N Longitude 76.744 W  
28-Mar-2014 03:41 Z

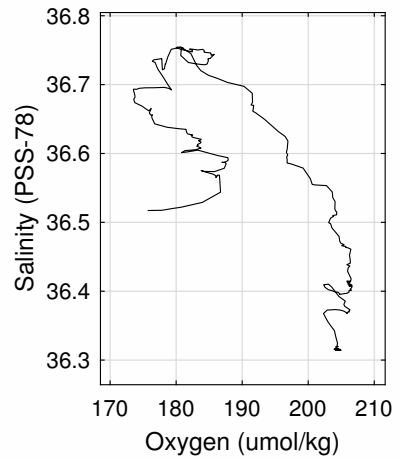
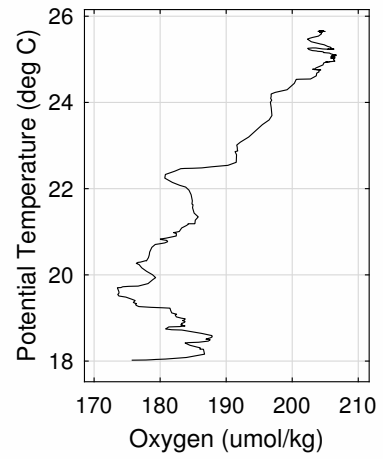
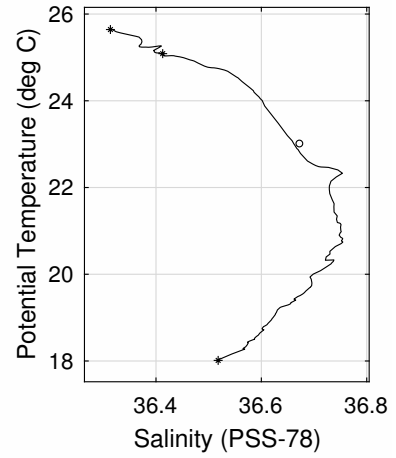
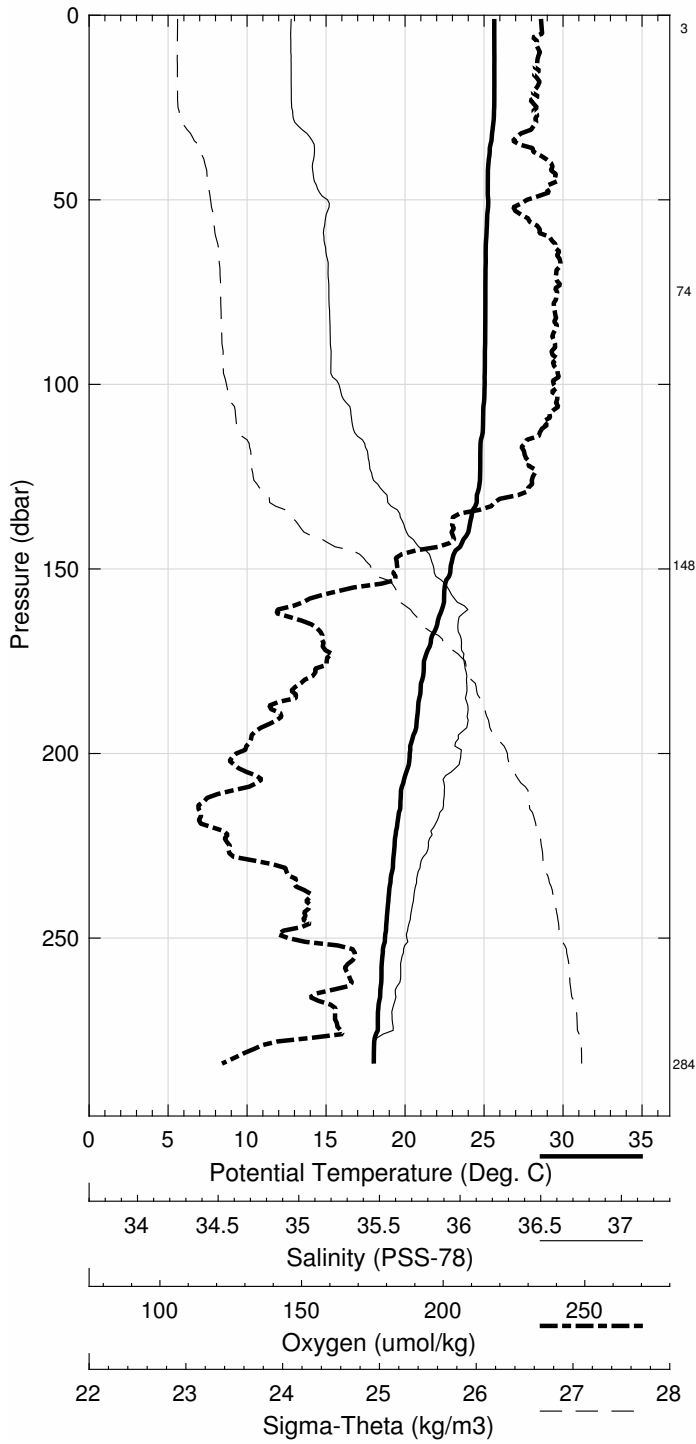


Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 28 (CTD028)  
 Latitude 26.065N Longitude 78.849W  
 30-Mar-2014 02:32Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$	DynHt $\text{m}^2\cdot\text{s}^{-2}$	SigT $\text{kg}\cdot\text{m}^{-3}$
1	25.648	25.648	36.316	204.9	0.004	24.136
10	25.652	25.650	36.315	204.8	0.038	24.135
20	25.655	25.651	36.316	204.4	0.076	24.135
30	25.571	25.565	36.333	204.2	0.113	24.175
50	25.275	25.264	36.406	203.6	0.186	24.323
75	25.101	25.084	36.409	206.4	0.276	24.381
100	25.061	25.039	36.434	206.0	0.365	24.413
125	24.775	24.747	36.517	204.1	0.452	24.565
150	22.906	22.875	36.670	191.8	0.531	25.237
200	20.333	20.295	36.737	177.0	0.649	26.008
250	18.772	18.727	36.602	181.8	0.744	26.316

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$
284	2	18.063	18.014	36.518	-999.0
149	4	23.019	22.989	36.674	-999.0
75	6	25.104	25.087	36.413	-999.0
4	8	25.644	25.643	36.313	-999.0

Abaco March - April 2014 R/V Atlantic Explorer  
CTD Station 28 (CTD028)  
Latitude 26.065 N Longitude 78.849 W  
30-Mar-2014 02:32 Z

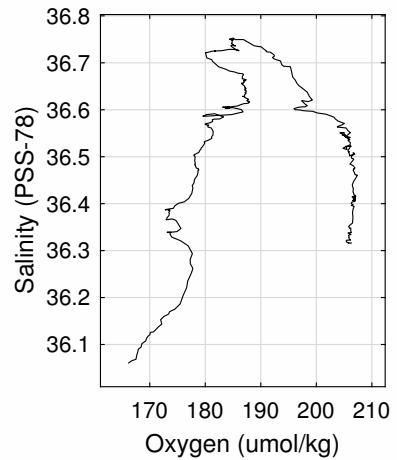
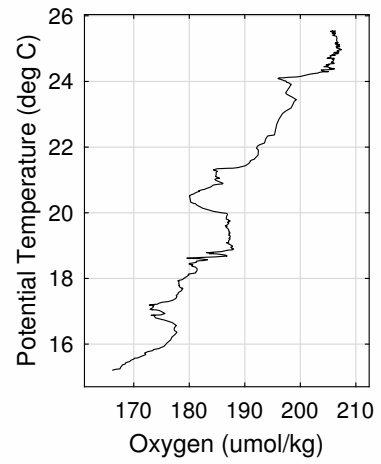
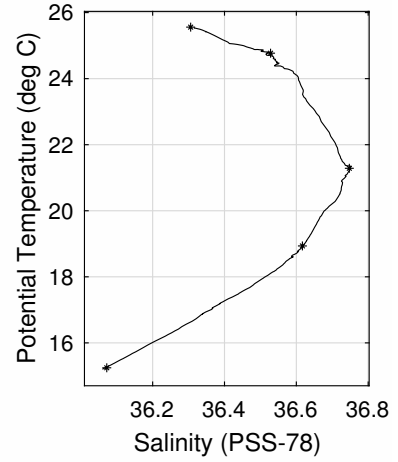
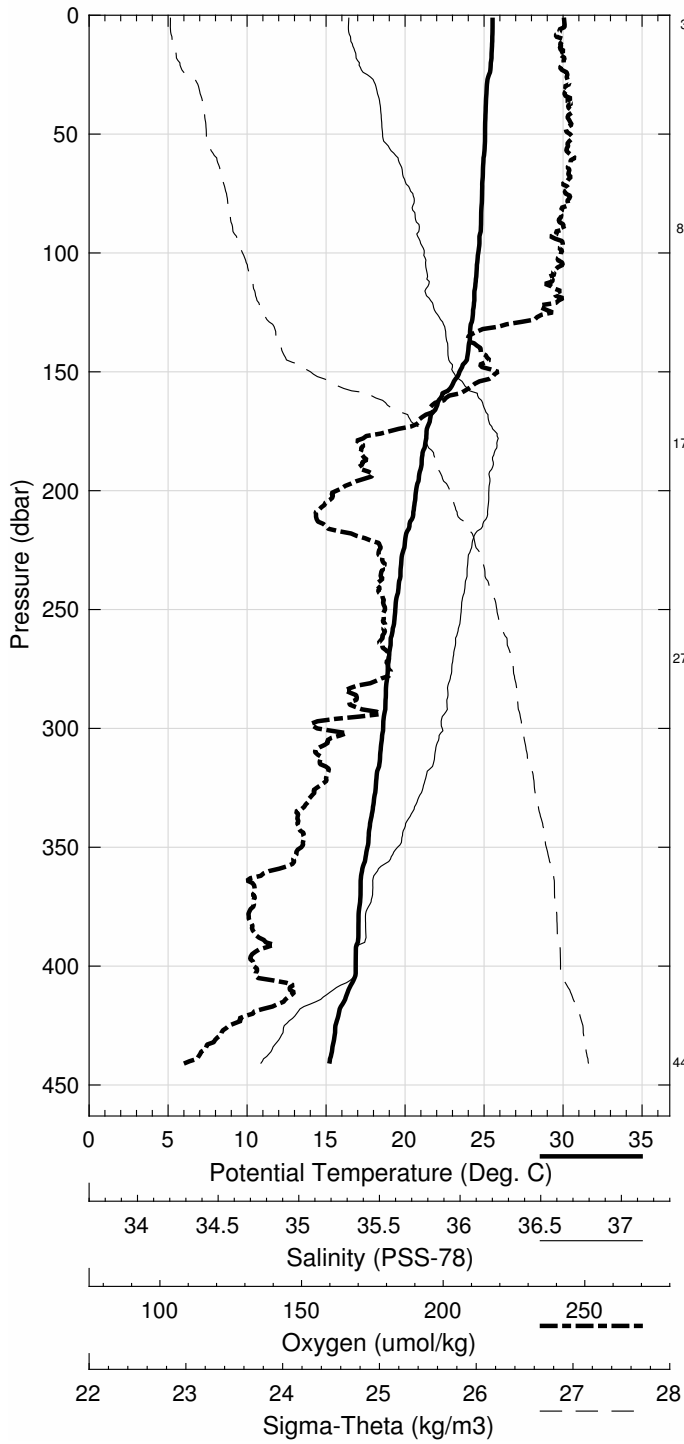


Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 29 (CTD029)  
 Latitude 26.166N Longitude 78.800W  
 30-Mar-2014 03:41Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$	DynHt $\text{m}^2\cdot\text{s}^{-2}$	SigT $\text{kg}\cdot\text{m}^{-3}$
1	25.537	25.537	36.317	206.2	0.004	24.172
10	25.521	25.519	36.323	206.2	0.037	24.182
20	25.430	25.425	36.348	206.2	0.075	24.230
30	25.177	25.170	36.396	206.3	0.111	24.345
50	25.072	25.062	36.416	206.9	0.182	24.393
75	24.890	24.874	36.504	206.4	0.269	24.517
100	24.654	24.632	36.537	205.9	0.355	24.615
125	24.326	24.299	36.571	205.0	0.437	24.741
150	23.475	23.444	36.621	199.3	0.516	25.034
200	20.734	20.695	36.725	182.2	0.638	25.891
250	19.425	19.379	36.645	187.3	0.740	26.181
300	18.664	18.611	36.590	180.2	0.832	26.336
400	16.941	16.874	36.339	173.5	0.999	26.572

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$
441	2	15.314	15.246	36.072	-999.0
271	4	18.984	18.935	36.617	-999.0
180	6	21.321	21.286	36.748	-999.0
90	8	24.790	24.771	36.528	-999.0
4	10	25.561	25.560	36.306	-999.0

Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 29 (CTD029)  
 Latitude 26.166 N Longitude 78.800 W  
 30-Mar-2014 03:41 Z



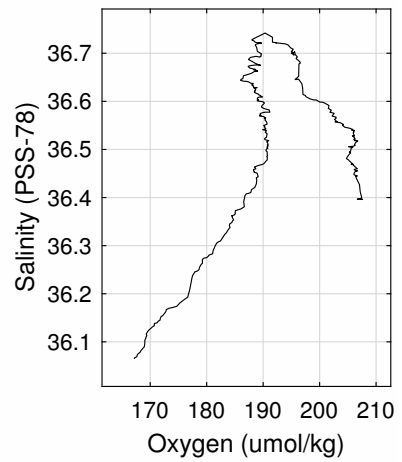
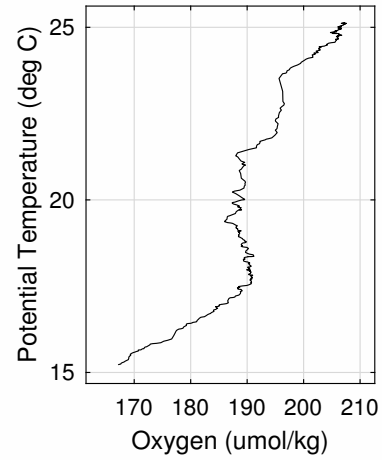
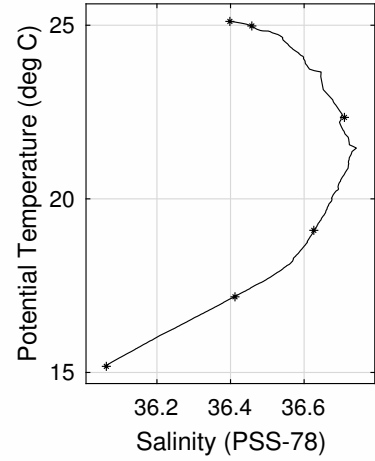
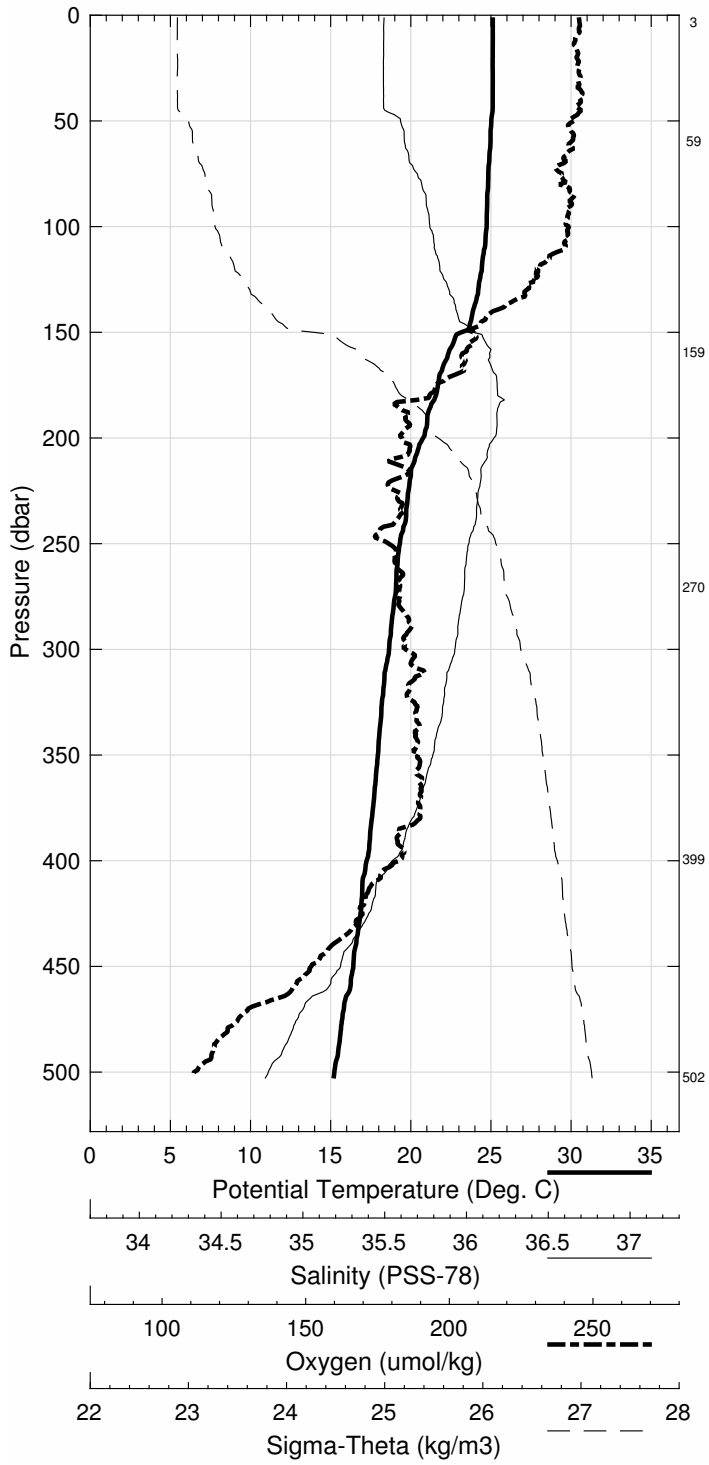
Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 30 (CTD030)  
 Latitude 26.252N Longitude 78.771W  
 30-Mar-2014 05:07Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$	DynHt $\text{m}^2\cdot\text{s}^{-2}$	SigT $\text{kg}\cdot\text{m}^{-3}$
1	25.116	25.115	36.398	207.2	0.004	24.363
10	25.118	25.115	36.397	206.9	0.036	24.362
20	25.115	25.111	36.396	206.9	0.071	24.363
30	25.120	25.113	36.396	207.3	0.107	24.362
50	25.036	25.025	36.445	206.7	0.178	24.426
75	24.851	24.835	36.493	205.5	0.265	24.521
100	24.753	24.732	36.529	206.2	0.350	24.579
125	24.335	24.309	36.570	202.2	0.434	24.738
150	23.176	23.145	36.652	196.3	0.512	25.145
200	20.805	20.766	36.712	188.8	0.634	25.862
250	19.364	19.318	36.640	187.5	0.736	26.193
300	18.695	18.641	36.600	189.2	0.829	26.337
400	17.310	17.242	36.421	188.5	0.998	26.547
500	15.307	15.228	36.067	167.2	1.153	26.744

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$
502	2	15.255	15.176	36.063	-999.0
400	4	17.246	17.179	36.412	-999.0
271	6	19.142	19.093	36.626	-999.0
160	8	22.378	22.345	36.710	-999.0
60	10	24.992	24.979	36.458	-999.0
3	12	25.111	25.110	36.398	-999.0



Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 30 (CTD030)  
 Latitude 26.252 N Longitude 78.771 W  
 30-Mar-2014 05:07 Z

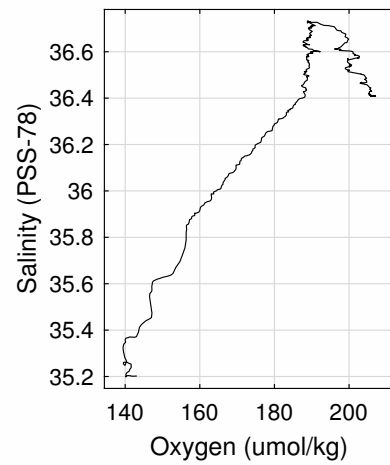
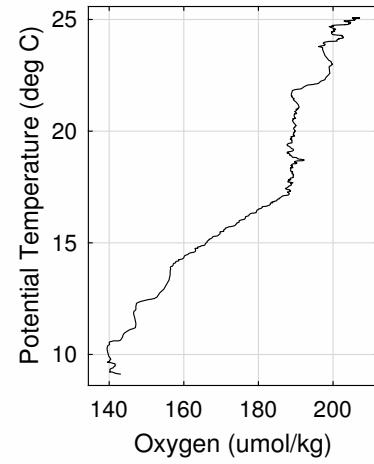
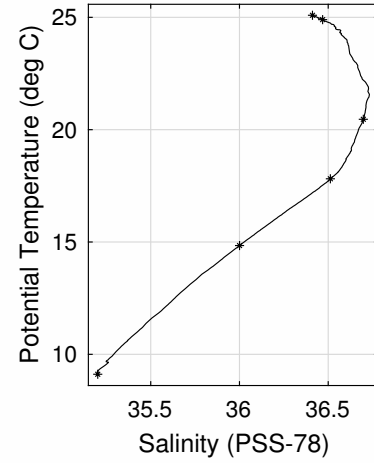
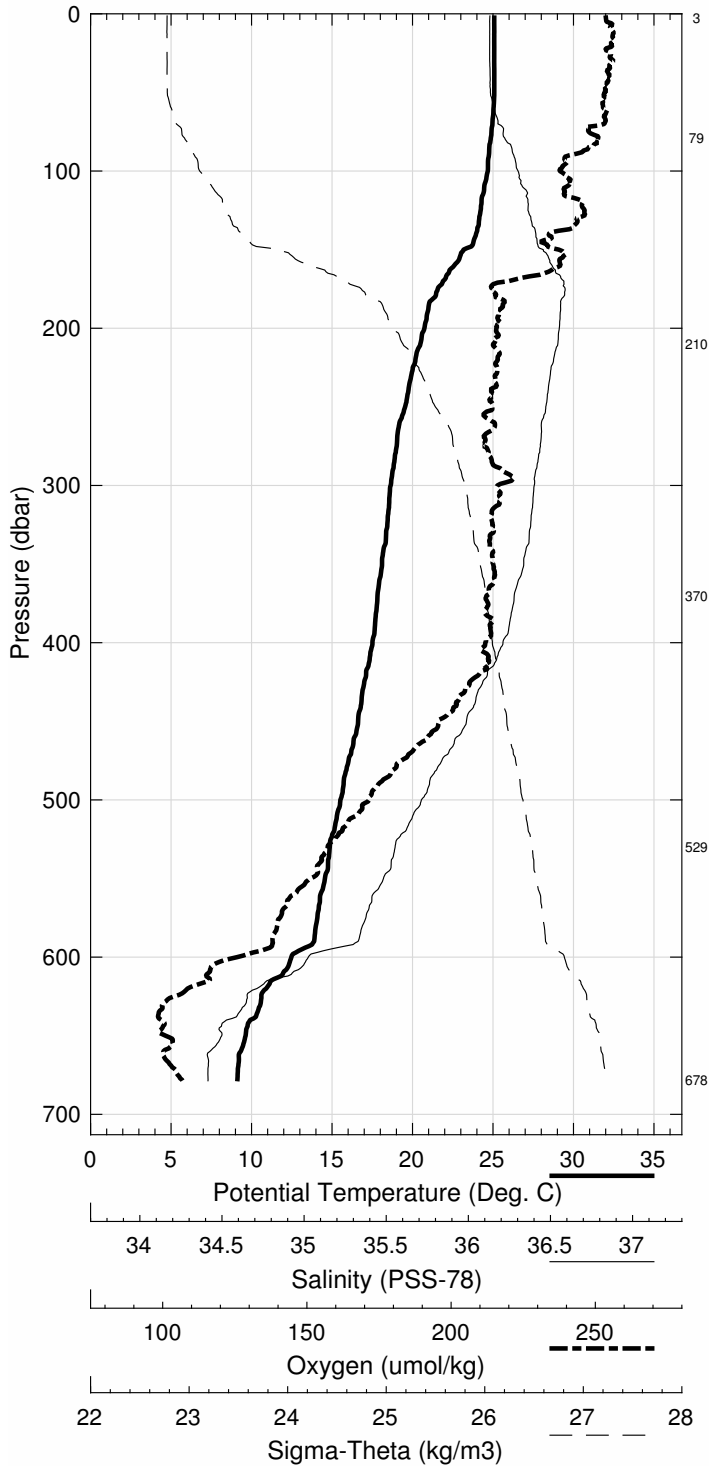


Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 31 (CTD031)  
 Latitude 26.334N Longitude 78.718W  
 30-Mar-2014 06:25Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$	DynHt $\text{m}^2\cdot\text{s}^{-2}$	SigT $\text{kg}\cdot\text{m}^{-3}$
1	25.078	25.077	36.410	205.8	0.004	24.383
10	25.081	25.079	36.409	206.7	0.035	24.382
20	25.082	25.077	36.409	206.8	0.071	24.383
30	25.081	25.075	36.409	207.0	0.106	24.384
50	25.090	25.079	36.412	205.6	0.177	24.384
75	24.921	24.905	36.467	203.3	0.265	24.480
100	24.698	24.676	36.530	199.0	0.351	24.597
125	24.259	24.232	36.573	202.7	0.433	24.763
150	23.200	23.169	36.639	198.9	0.511	25.128
200	20.776	20.738	36.707	189.6	0.634	25.866
250	19.585	19.539	36.649	189.0	0.738	26.142
300	18.695	18.641	36.600	189.8	0.831	26.336
400	17.580	17.511	36.466	188.0	1.003	26.516
500	15.598	15.519	36.116	170.7	1.160	26.717
600	12.556	12.473	35.632	151.2	1.301	26.988

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$
679	2	9.190	9.114	35.201	-999.0
530	4	14.923	14.842	36.000	-999.0
370	6	17.878	17.814	36.512	-999.0
210	8	20.502	20.463	36.698	-999.0
80	10	24.914	24.897	36.469	-999.0
3	12	25.093	25.092	36.411	-999.0

Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 31 (CTD031)  
 Latitude 26.334 N Longitude 78.718 W  
 30-Mar-2014 06:25 Z

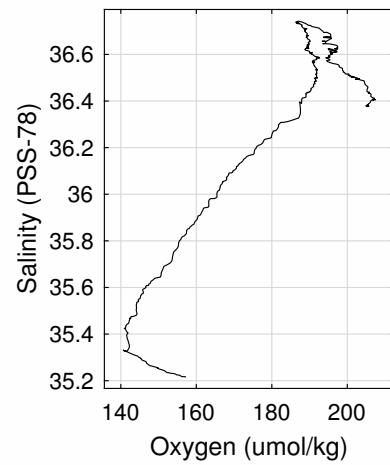
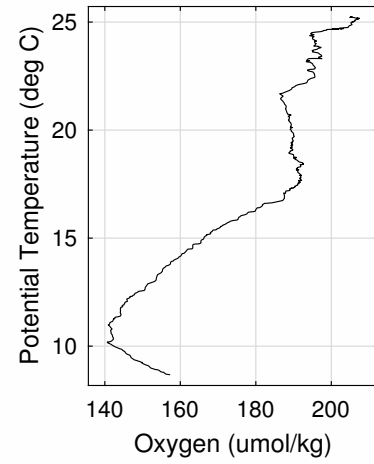
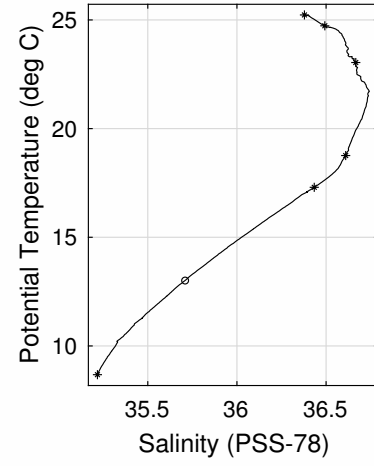
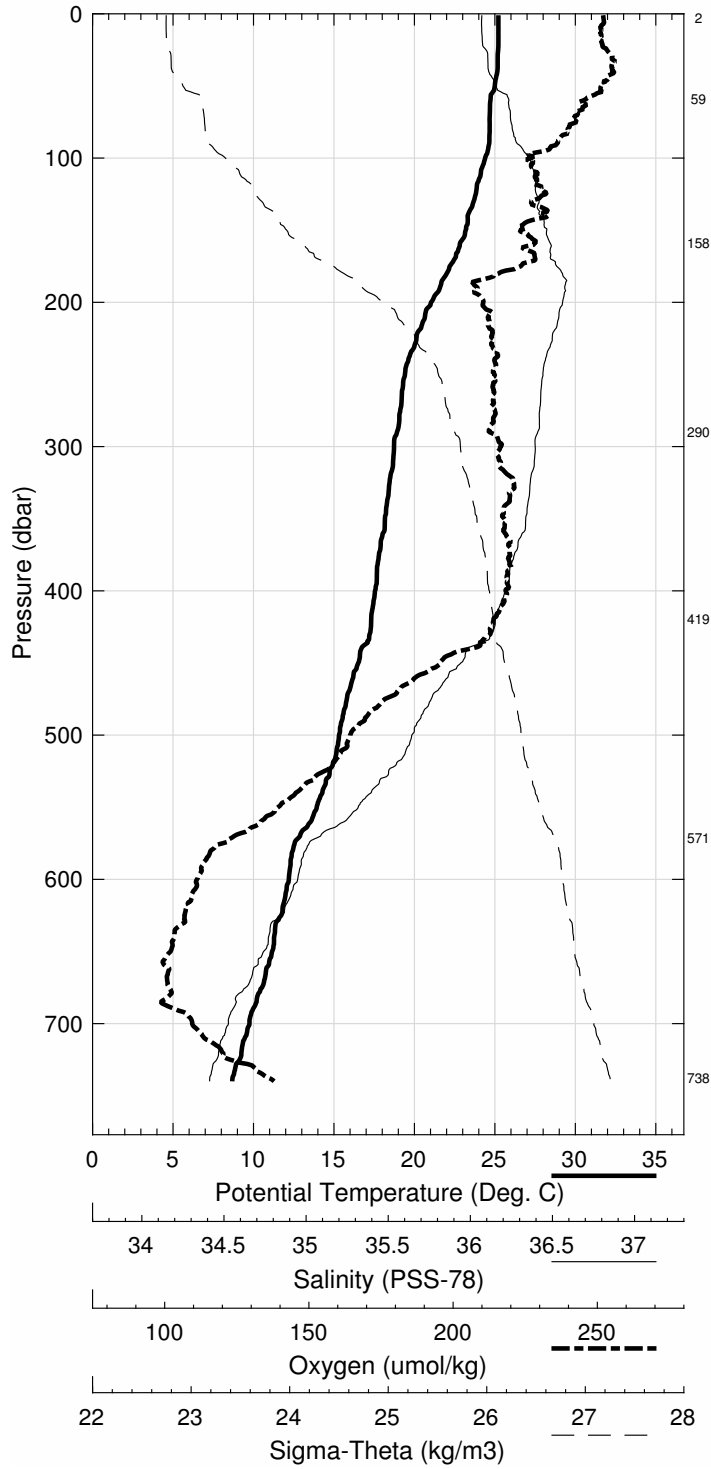


Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 32 (CTD032)  
 Latitude 26.436N Longitude 78.659W  
 30-Mar-2014 07:55Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$	DynHt $\text{m}^2\cdot\text{s}^{-2}$	SigT $\text{kg}\cdot\text{m}^{-3}$
1	25.219	25.219	36.380	205.6	0.004	24.317
10	25.222	25.220	36.379	205.1	0.036	24.317
20	25.223	25.218	36.383	205.3	0.072	24.320
30	25.181	25.175	36.405	207.0	0.108	24.350
50	25.006	24.995	36.439	205.3	0.179	24.431
75	24.691	24.675	36.505	201.7	0.264	24.578
100	24.417	24.395	36.581	195.1	0.348	24.720
125	23.838	23.812	36.613	197.2	0.427	24.919
150	23.217	23.186	36.657	193.3	0.501	25.137
200	21.070	21.031	36.725	188.0	0.631	25.799
250	19.457	19.411	36.641	189.7	0.735	26.169
300	18.786	18.733	36.608	190.5	0.829	26.319
400	17.618	17.549	36.478	191.3	1.001	26.516
500	15.393	15.314	36.081	168.4	1.158	26.735
600	12.276	12.195	35.593	146.0	1.292	27.012
700	9.831	9.748	35.297	145.3	1.403	27.227

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$
738	2	8.759	8.678	35.218	-999.0
572	4	13.036	12.956	35.716	-999.0
420	6	17.371	17.299	36.434	-999.0
290	8	18.813	18.761	36.610	-999.0
159	10	23.073	23.041	36.667	-999.0
59	12	24.743	24.730	36.493	-999.0
3	13	25.230	25.230	36.379	-999.0

Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 32 (CTD032)  
 Latitude 26.436 N Longitude 78.659 W  
 30-Mar-2014 07:55 Z

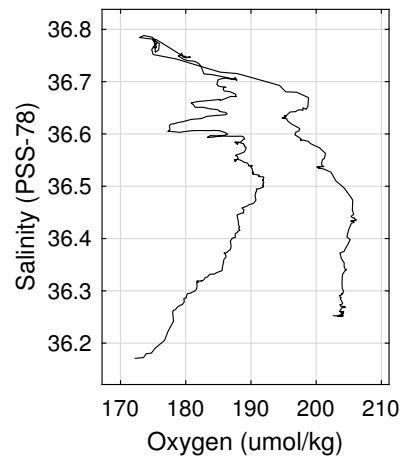
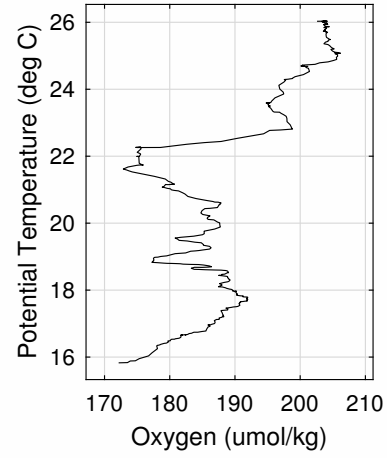
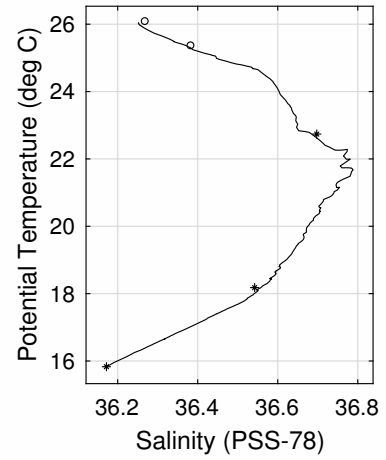
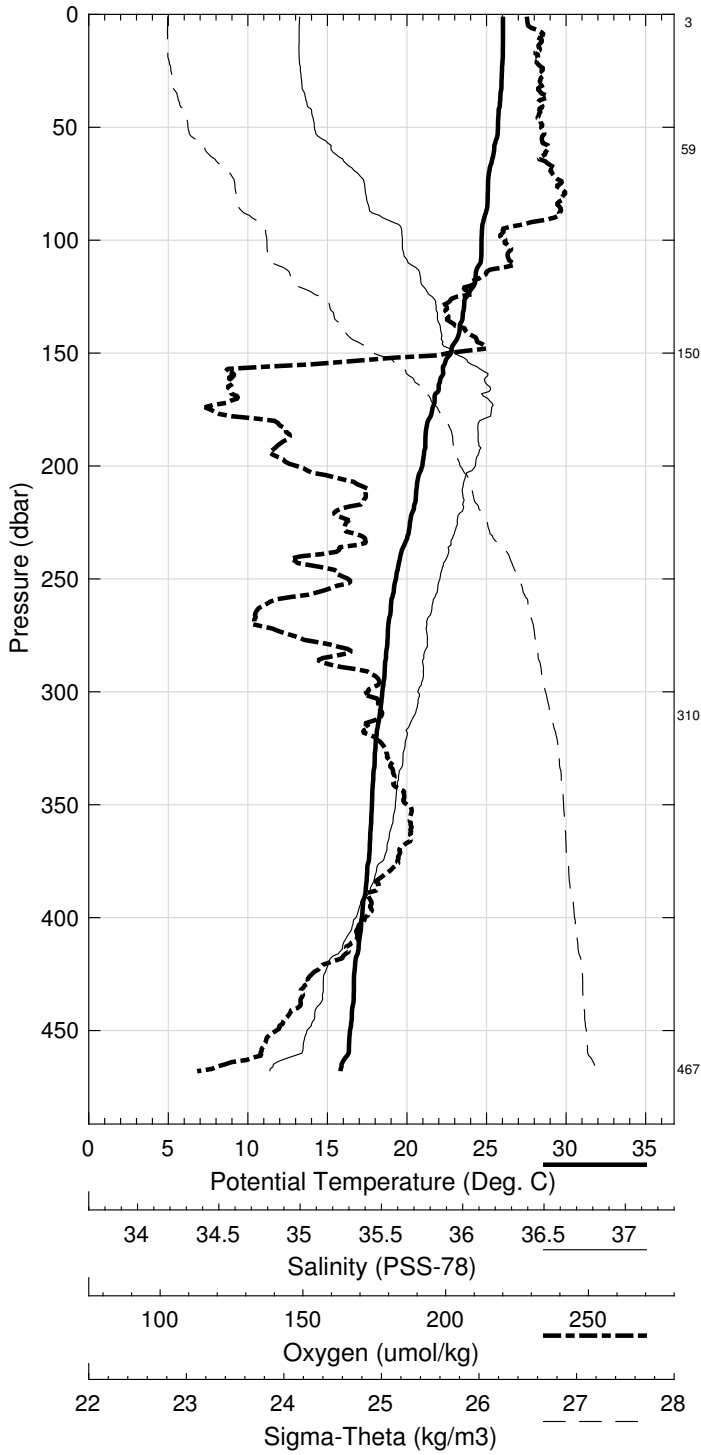


Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 33 (CTD033)  
 Latitude 26.998N Longitude 79.199W  
 30-Mar-2014 15:57Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$	DynHt $\text{m}^2\cdot\text{s}^{-2}$	SigT $\text{kg}\cdot\text{m}^{-3}$
1	26.032	26.032	36.254	202.6	0.004	23.970
10	26.033	26.031	36.252	203.5	0.039	23.969
20	26.013	26.009	36.253	203.7	0.079	23.976
30	25.946	25.939	36.259	203.8	0.118	24.003
50	25.730	25.719	36.294	203.9	0.195	24.098
75	25.108	25.092	36.433	205.7	0.287	24.396
100	24.706	24.684	36.538	200.7	0.374	24.600
125	23.770	23.744	36.620	196.1	0.456	24.944
150	22.801	22.771	36.681	195.3	0.529	25.275
200	21.003	20.964	36.739	181.3	0.649	25.828
250	19.353	19.307	36.641	186.1	0.753	26.197
300	18.500	18.447	36.580	188.0	0.844	26.371
400	17.238	17.170	36.409	187.6	1.012	26.555

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$
467	2	15.906	15.831	36.172	-999.0
311	4	18.234	18.179	36.542	-999.0
150	6	22.769	22.738	36.697	-999.0
60	8	25.352	25.339	36.385	-999.0
4	10	26.060	26.059	36.270	-999.0

Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 33 (CTD033)  
 Latitude 26.998 N Longitude 79.199 W  
 30-Mar-2014 15:57 Z



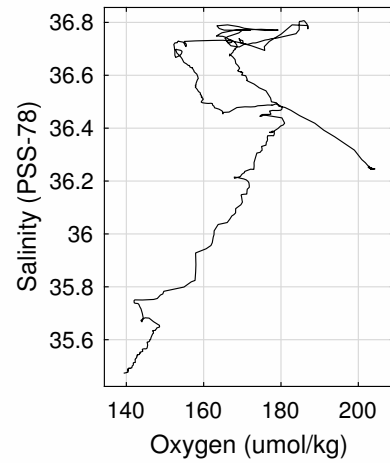
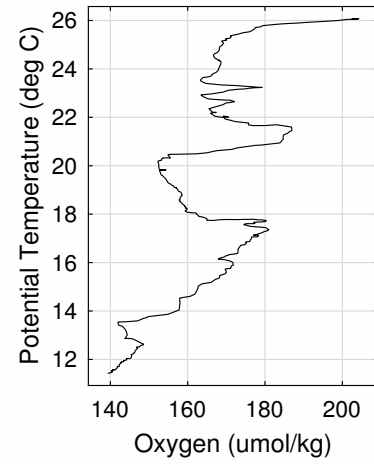
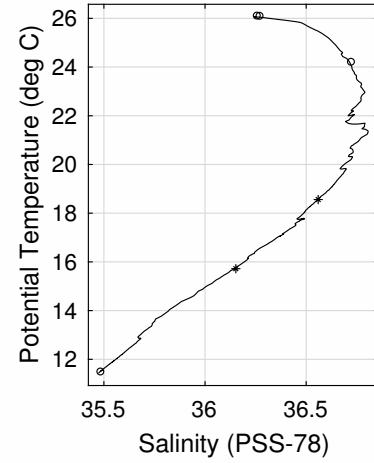
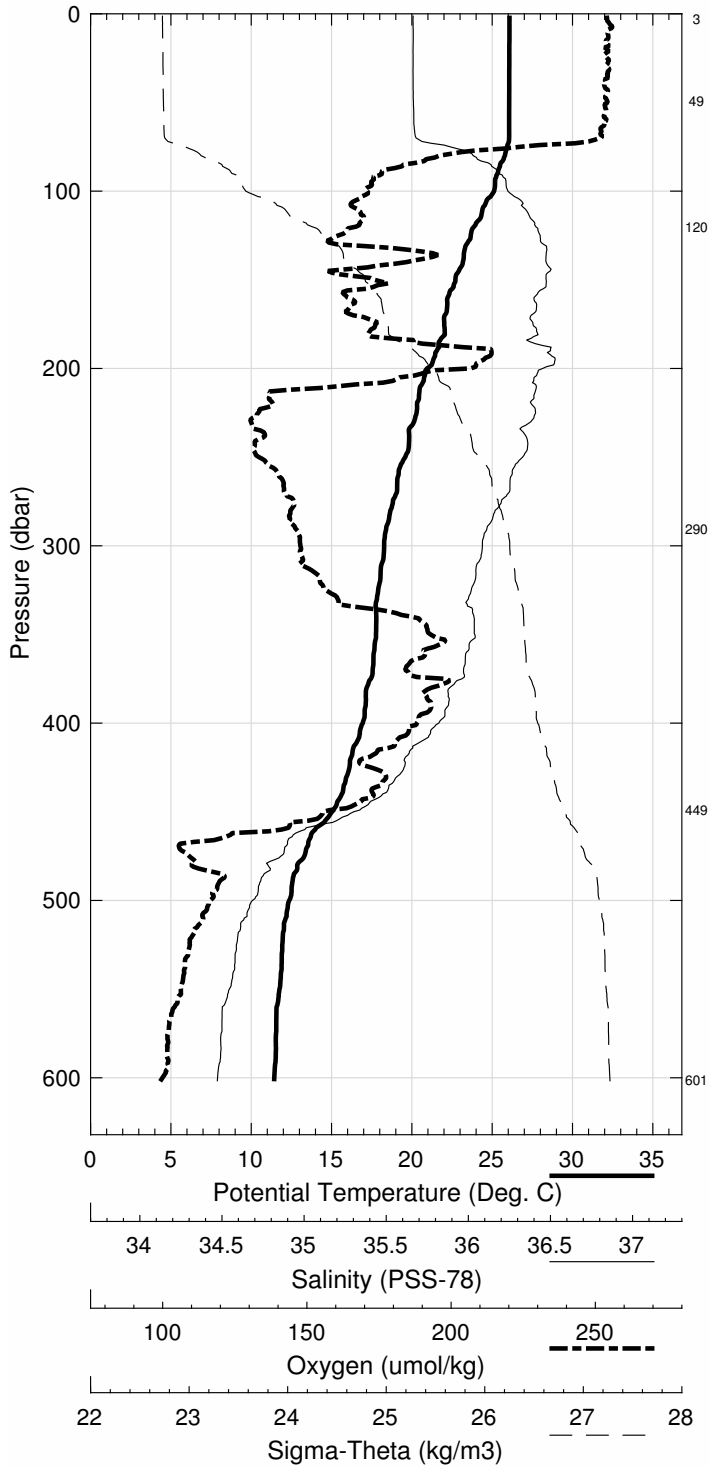
Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 34 (CTD034)  
 Latitude 27.001N Longitude 79.283W  
 30-Mar-2014 17:05Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$	DynHt $\text{m}^2\cdot\text{s}^{-2}$	SigT $\text{kg}\cdot\text{m}^{-3}$
1	26.078	26.077	36.246	203.5	0.004	23.950
10	26.077	26.075	36.246	203.7	0.040	23.951
20	26.070	26.066	36.246	203.5	0.079	23.953
30	26.072	26.066	36.246	203.6	0.119	23.953
50	26.069	26.058	36.247	203.6	0.198	23.957
75	25.943	25.926	36.392	191.1	0.297	24.107
100	25.141	25.119	36.620	169.0	0.386	24.530
125	23.690	23.664	36.747	164.9	0.465	25.065
150	22.741	22.710	36.771	170.1	0.535	25.361
200	20.983	20.944	36.757	183.9	0.659	25.848
250	19.634	19.588	36.678	153.5	0.763	26.151
300	18.327	18.274	36.519	159.5	0.855	26.368
400	17.011	16.944	36.347	176.2	1.023	26.562
500	12.431	12.363	35.612	146.5	1.164	26.994
600	11.513	11.435	35.474	139.6	1.280	27.065

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$
601	2	11.531	11.453	35.488	-999.0
449	4	15.792	15.721	36.152	-999.0
291	6	18.611	18.560	36.559	-999.0
120	8	24.196	24.170	36.727	-999.0
50	10	26.069	26.058	36.275	-999.0
3	12	26.067	26.067	36.261	-999.0



Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 34 (CTD034)  
 Latitude 27.001 N Longitude 79.283 W  
 30-Mar-2014 17:05 Z

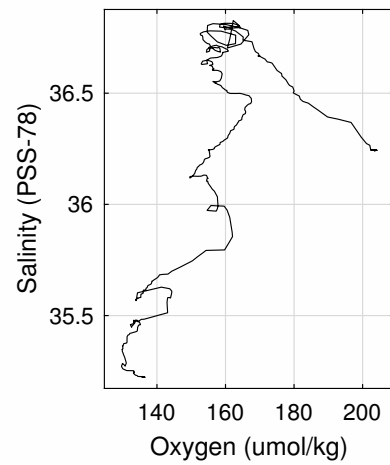
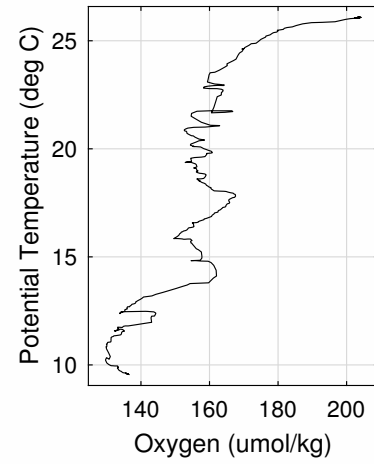
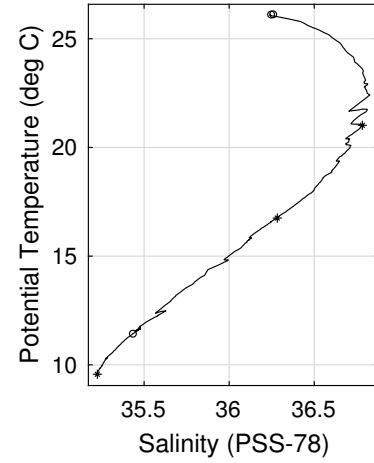
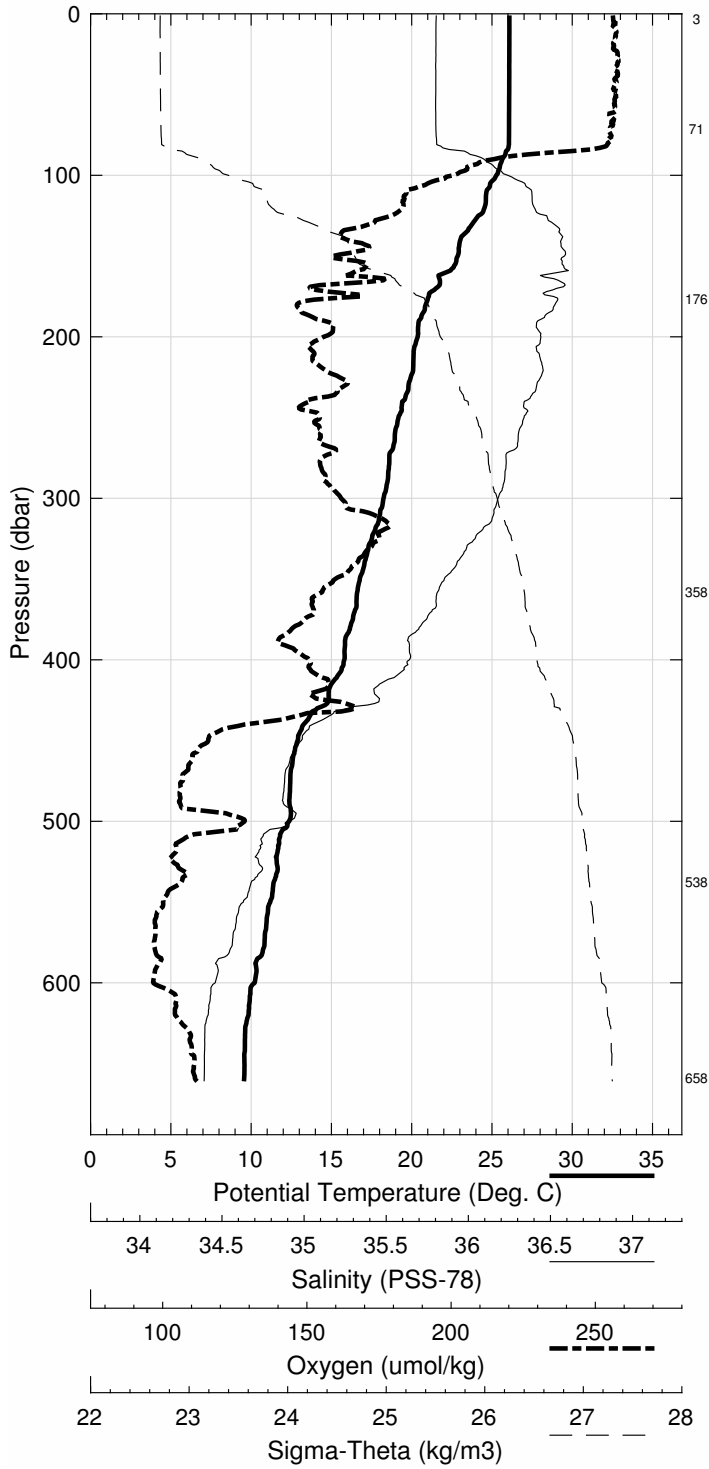


Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 35 (CTD035)  
 Latitude 27.002N Longitude 79.372W  
 30-Mar-2014 18:26Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$	DynHt $\text{m}^2\cdot\text{s}^{-2}$	SigT $\text{kg}\cdot\text{m}^{-3}$
1	26.085	26.085	36.245	203.2	0.004	23.947
10	26.086	26.084	36.244	203.6	0.040	23.945
20	26.086	26.082	36.243	203.4	0.079	23.946
30	26.086	26.079	36.243	203.9	0.119	23.947
50	26.084	26.073	36.243	203.5	0.198	23.948
75	26.079	26.062	36.244	202.9	0.298	23.953
100	25.294	25.272	36.560	177.6	0.392	24.437
125	24.176	24.150	36.731	167.7	0.475	24.908
150	22.896	22.865	36.809	158.4	0.545	25.346
200	20.411	20.373	36.706	157.0	0.661	25.963
250	19.220	19.175	36.632	156.3	0.761	26.224
300	18.299	18.246	36.517	159.7	0.852	26.373
400	15.867	15.803	36.126	154.6	1.014	26.660
500	12.440	12.372	35.603	144.3	1.144	26.986
600	10.295	10.222	35.271	129.7	1.258	27.125

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$
659	2	9.644	9.567	35.225	-999.0
538	4	11.450	11.380	35.441	-999.0
358	6	16.812	16.753	36.283	-999.0
177	8	21.053	21.018	36.783	-999.0
72	10	26.077	26.061	36.253	-999.0
3	12	26.072	26.071	36.265	-999.0

Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 35 (CTD035)  
 Latitude 27.002 N Longitude 79.372 W  
 30-Mar-2014 18:26 Z

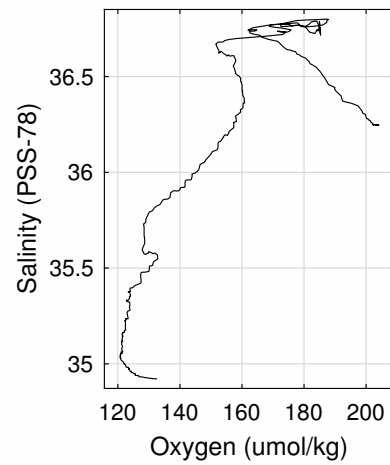
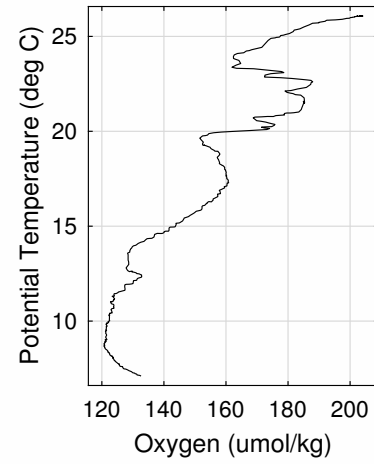
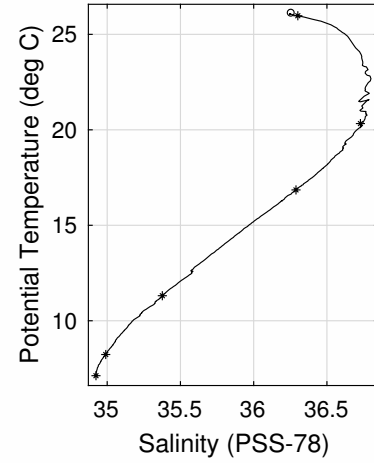
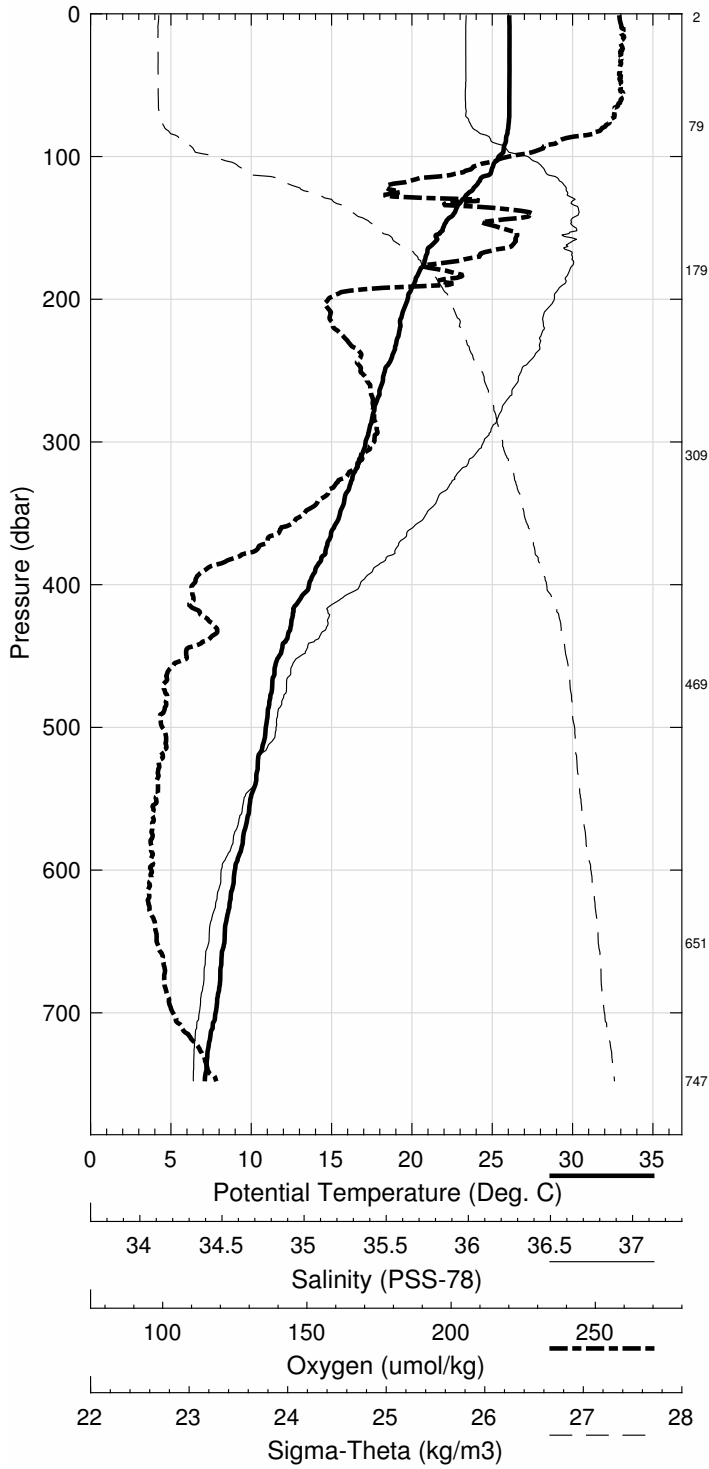


Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 36 (CTD036)  
 Latitude 27.002N Longitude 79.498W  
 30-Mar-2014 19:59Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$	DynHt $\text{m}^2\cdot\text{s}^{-2}$	SigT $\text{kg}\cdot\text{m}^{-3}$
1	26.062	26.062	36.251	203.1	0.004	23.958
10	26.077	26.075	36.248	203.5	0.039	23.952
20	26.079	26.074	36.248	203.3	0.079	23.952
30	26.079	26.073	36.249	203.6	0.119	23.953
50	26.079	26.068	36.248	203.8	0.198	23.954
75	26.053	26.036	36.263	201.4	0.297	23.975
100	25.422	25.400	36.550	183.8	0.393	24.390
125	23.599	23.573	36.744	164.8	0.474	25.090
150	21.962	21.932	36.785	182.4	0.540	25.594
200	19.765	19.728	36.679	152.2	0.649	26.116
250	18.363	18.319	36.519	157.9	0.742	26.356
300	17.166	17.115	36.335	160.2	0.826	26.512
400	13.659	13.601	35.734	128.5	0.974	26.838
500	10.967	10.904	35.324	123.2	1.094	27.046
600	9.043	8.976	35.057	121.3	1.202	27.167
700	7.851	7.779	34.951	125.1	1.299	27.268

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$
748	2	7.196	7.123	34.923	-999.0
651	4	8.301	8.232	34.990	-999.0
470	6	11.372	11.312	35.376	-999.0
309	8	16.904	16.852	36.289	-999.0
180	10	20.362	20.328	36.729	-999.0
79	12	25.992	25.974	36.301	-999.0
3	13	26.076	26.075	36.261	-999.0

Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 36 (CTD036)  
 Latitude 27.002 N Longitude 79.498 W  
 30-Mar-2014 19:59 Z

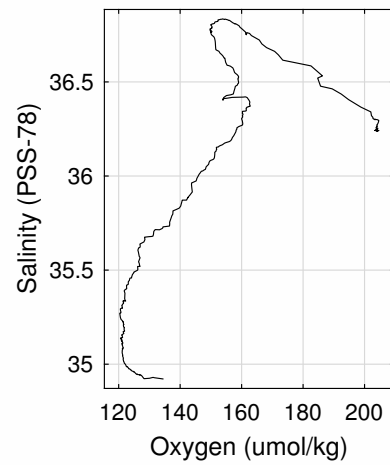
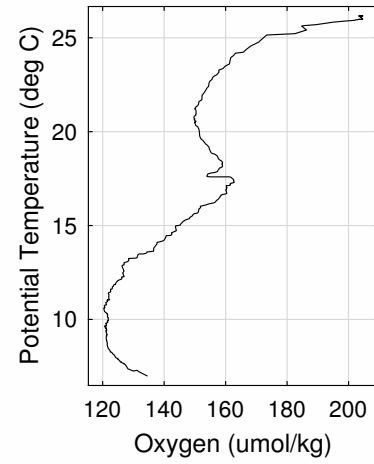
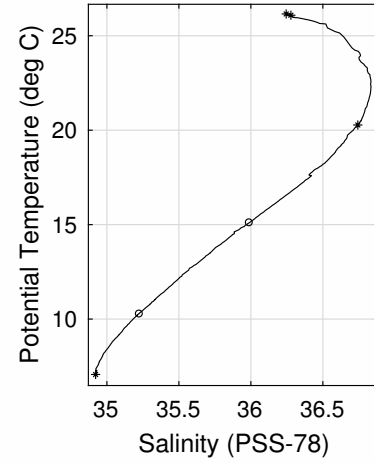
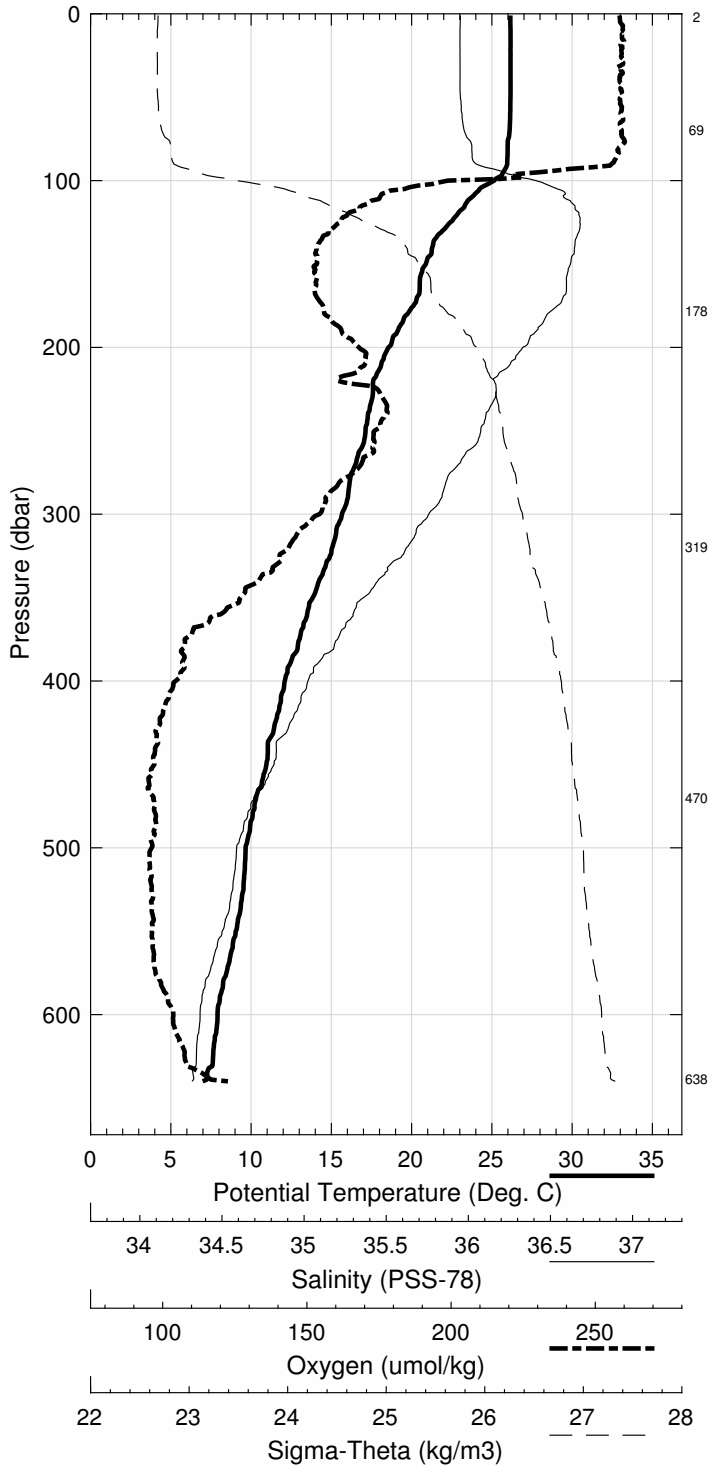


Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 37 (CTD037)  
 Latitude 27.002N Longitude 79.614W  
 30-Mar-2014 21:40Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$	DynHt $\text{m}^2\cdot\text{s}^{-2}$	SigT $\text{kg}\cdot\text{m}^{-3}$
1	26.151	26.151	36.244	203.7	0.004	23.925
10	26.165	26.163	36.242	204.2	0.040	23.919
20	26.169	26.164	36.241	204.3	0.080	23.919
30	26.167	26.161	36.242	204.4	0.120	23.920
50	26.170	26.159	36.244	203.9	0.199	23.922
75	26.035	26.018	36.282	204.4	0.299	23.996
100	25.170	25.148	36.616	173.4	0.395	24.517
125	22.435	22.410	36.832	154.4	0.467	25.494
150	20.917	20.888	36.786	150.4	0.524	25.885
200	18.587	18.551	36.551	157.7	0.623	26.322
250	17.172	17.130	36.344	160.4	0.706	26.515
300	15.710	15.663	36.088	150.7	0.783	26.662
400	12.150	12.096	35.493	125.3	0.917	26.953
500	9.718	9.660	35.141	121.1	1.029	27.120
600	7.970	7.908	34.961	124.9	1.129	27.257

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$
639	2	7.129	7.067	34.922	-999.0
470	4	10.290	10.234	35.230	-999.0
320	6	15.112	15.063	35.994	-999.0
178	8	20.308	20.274	36.743	-999.0
70	10	26.102	26.086	36.278	-999.0
2	12	26.154	26.153	36.245	-999.0

Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 37 (CTD037)  
 Latitude 27.002 N Longitude 79.614 W  
 30-Mar-2014 21:40 Z



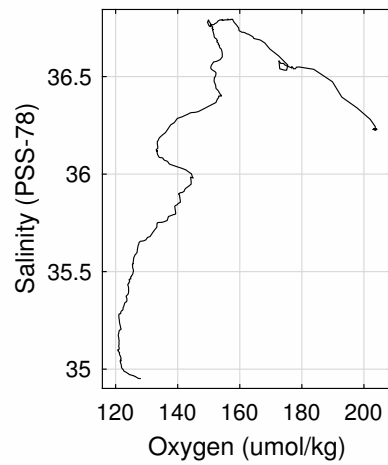
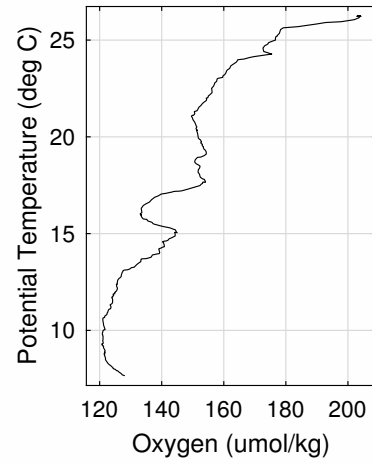
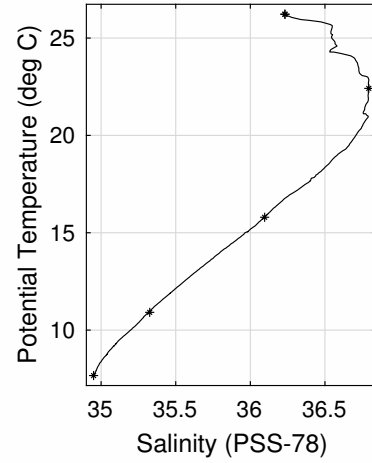
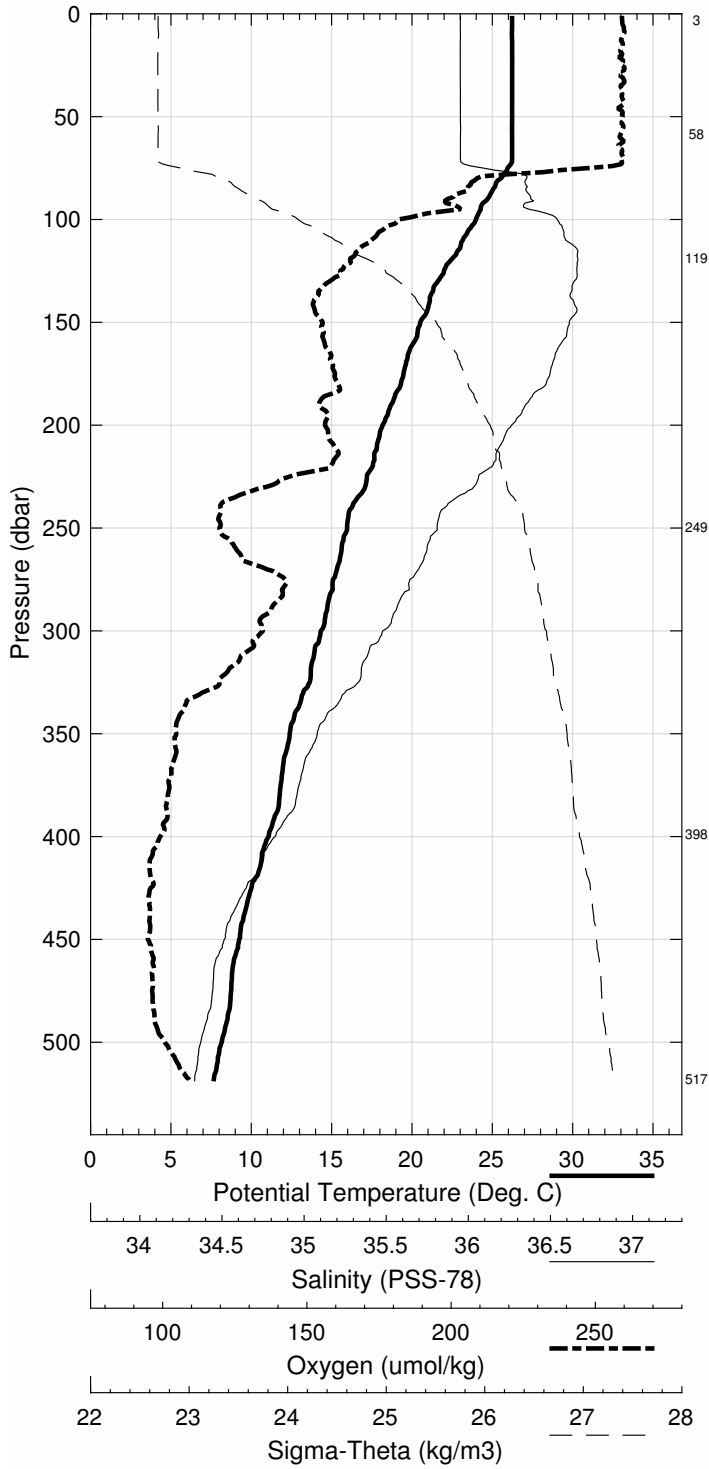
Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 38 (CTD038)  
 Latitude 27.004N Longitude 79.685W  
 30-Mar-2014 22:58Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$	DynHt $\text{m}^2\cdot\text{s}^{-2}$	SigT $\text{kg}\cdot\text{m}^{-3}$
1	26.229	26.229	36.230	203.6	0.004	23.890
10	26.217	26.215	36.229	203.9	0.040	23.894
20	26.238	26.233	36.229	203.8	0.080	23.887
30	26.241	26.234	36.229	203.3	0.120	23.887
50	26.243	26.232	36.229	203.8	0.201	23.888
75	25.966	25.949	36.340	197.8	0.302	24.060
100	24.005	23.984	36.695	164.5	0.387	24.930
125	22.015	21.990	36.790	154.3	0.455	25.581
150	20.542	20.513	36.753	151.3	0.511	25.962
200	18.205	18.170	36.475	151.7	0.607	26.360
250	16.004	15.964	36.118	133.2	0.688	26.616
300	14.373	14.329	35.856	140.9	0.759	26.779
400	11.123	11.073	35.338	122.9	0.882	27.026
500	8.211	8.158	34.981	123.7	0.983	27.235

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$
518	2	7.718	7.665	34.950	-999.0
399	4	10.961	10.912	35.326	-999.0
250	6	15.835	15.795	36.096	-999.0
119	8	22.439	22.415	36.794	-999.0
59	10	26.240	26.227	36.231	-999.0
3	12	26.221	26.220	36.233	-999.0



Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 38 (CTD038)  
 Latitude 27.004 N Longitude 79.685 W  
 30-Mar-2014 22:58 Z

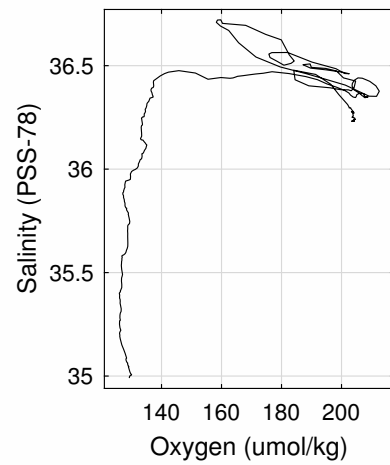
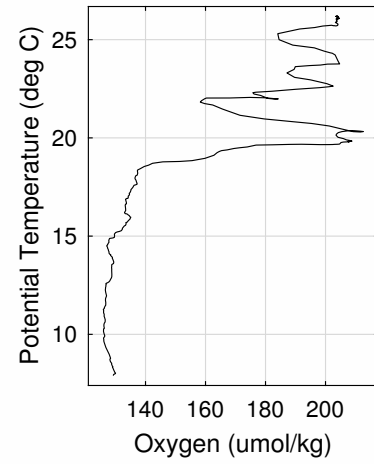
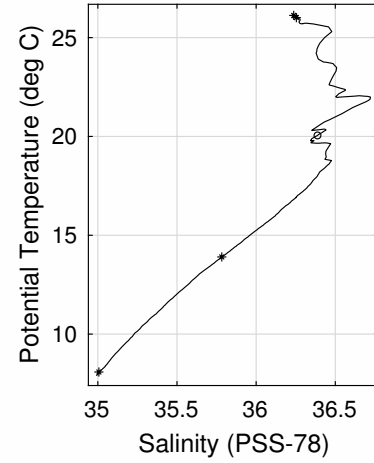
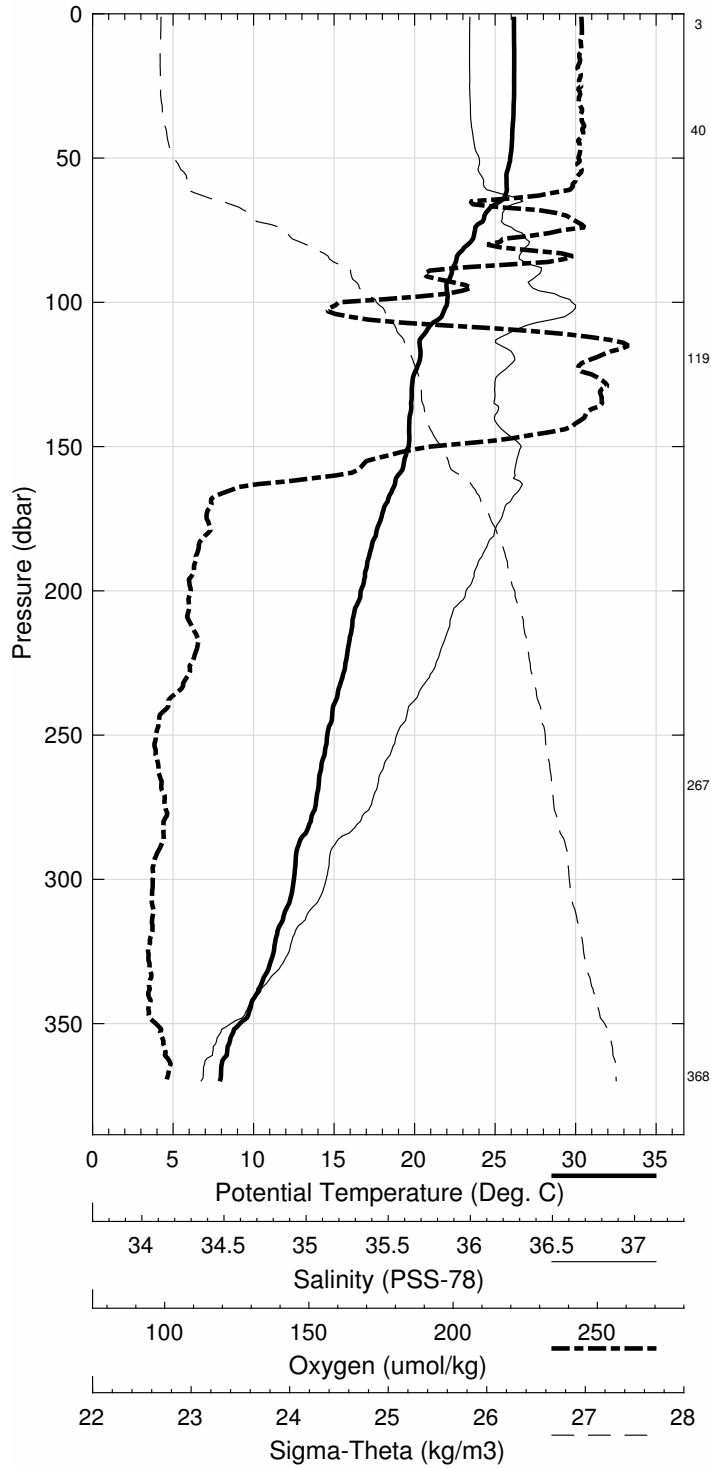


Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 39 (CTD039)  
 Latitude 27.003N Longitude 79.786W  
 31-Mar-2014 00:21Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$	DynHt $\text{m}^2\cdot\text{s}^{-2}$	SigT $\text{kg}\cdot\text{m}^{-3}$
1	26.170	26.170	36.233	204.1	0.004	23.911
10	26.179	26.177	36.232	204.0	0.040	23.908
20	26.187	26.183	36.232	203.8	0.080	23.906
30	26.175	26.168	36.234	203.6	0.120	23.912
50	25.950	25.939	36.276	203.6	0.199	24.015
75	23.770	23.755	36.441	200.6	0.290	24.806
100	22.048	22.028	36.704	160.3	0.359	25.505
125	19.986	19.963	36.367	206.0	0.418	25.815
150	19.661	19.634	36.471	176.8	0.472	25.981
200	16.688	16.655	36.215	133.7	0.560	26.530
250	14.613	14.575	35.895	127.4	0.633	26.755
300	12.543	12.502	35.569	126.8	0.697	26.934

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$
368	2	8.119	8.081	35.007	-999.0
267	4	13.942	13.903	35.783	-999.0
119	6	20.015	19.993	36.395	-999.0
40	8	26.020	26.011	36.254	-999.0
4	10	26.125	26.124	36.237	-999.0

Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 39 (CTD039)  
 Latitude 27.003 N Longitude 79.786 W  
 31-Mar-2014 00:21 Z



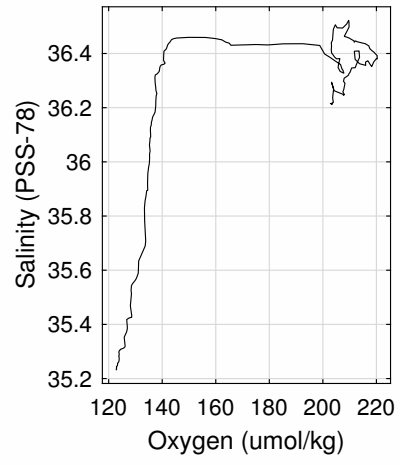
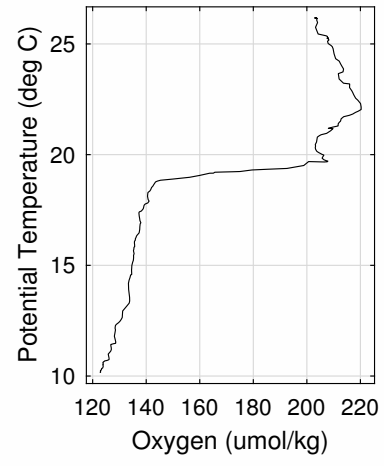
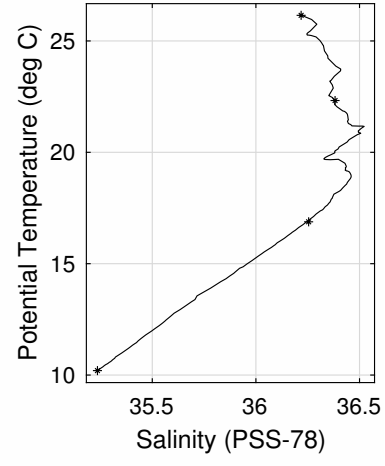
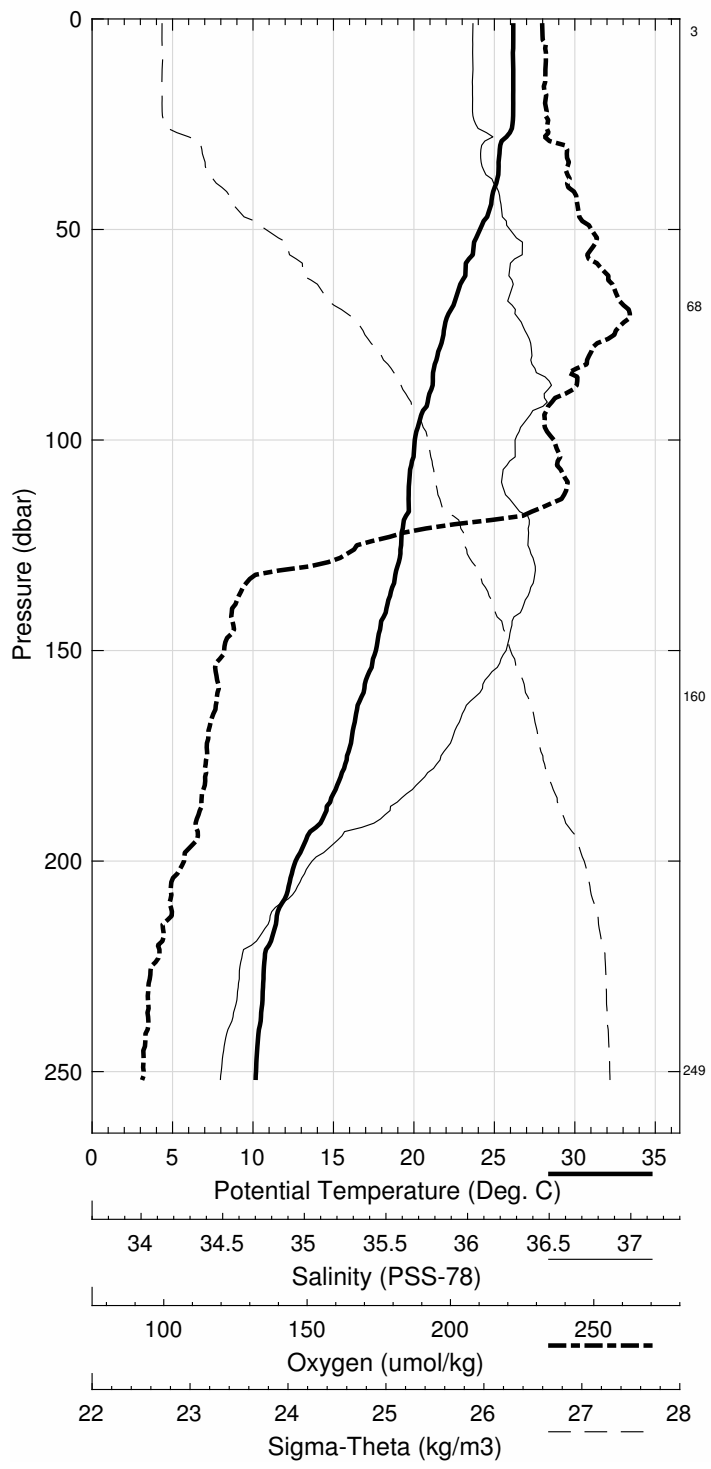
Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 40 (CTD040)  
 Latitude 27.003N Longitude 79.865W  
 31-Mar-2014 01:27Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$	DynHt $\text{m}^2\cdot\text{s}^{-2}$	SigT $\text{kg}\cdot\text{m}^{-3}$
1	26.175	26.175	36.216	202.7	0.004	23.897
10	26.164	26.161	36.216	203.5	0.040	23.900
20	26.176	26.171	36.215	203.3	0.080	23.896
30	25.372	25.365	36.250	207.3	0.119	24.174
50	24.115	24.104	36.360	212.6	0.191	24.640
75	21.850	21.836	36.428	217.2	0.265	25.350
100	20.070	20.052	36.380	205.1	0.325	25.801
125	19.227	19.205	36.430	165.6	0.378	26.062
150	17.662	17.636	36.346	139.1	0.424	26.393
200	12.674	12.646	35.589	131.1	0.496	26.921
250	10.217	10.187	35.235	123.0	0.549	27.103

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$
250	2	10.229	10.199	35.235	-999.0
161	4	16.907	16.880	36.254	-999.0
68	6	22.339	22.325	36.382	-999.0
3	8	26.151	26.150	36.218	-999.0

Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 40 (CTD040)  
 Latitude 27.003 N Longitude 79.865 W  
 31-Mar-2014 01:27 Z

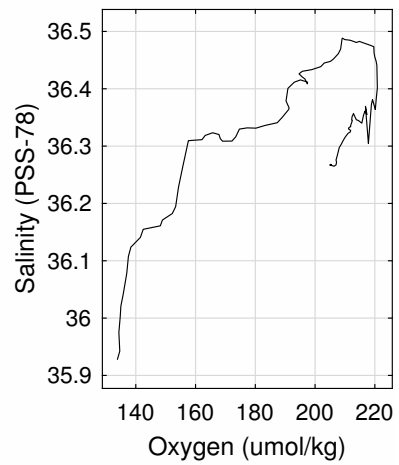
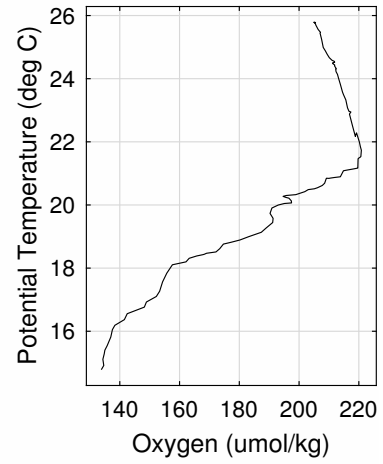
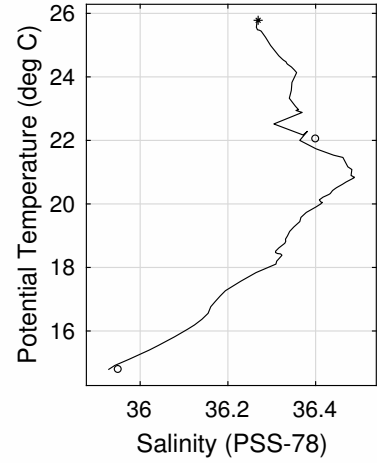
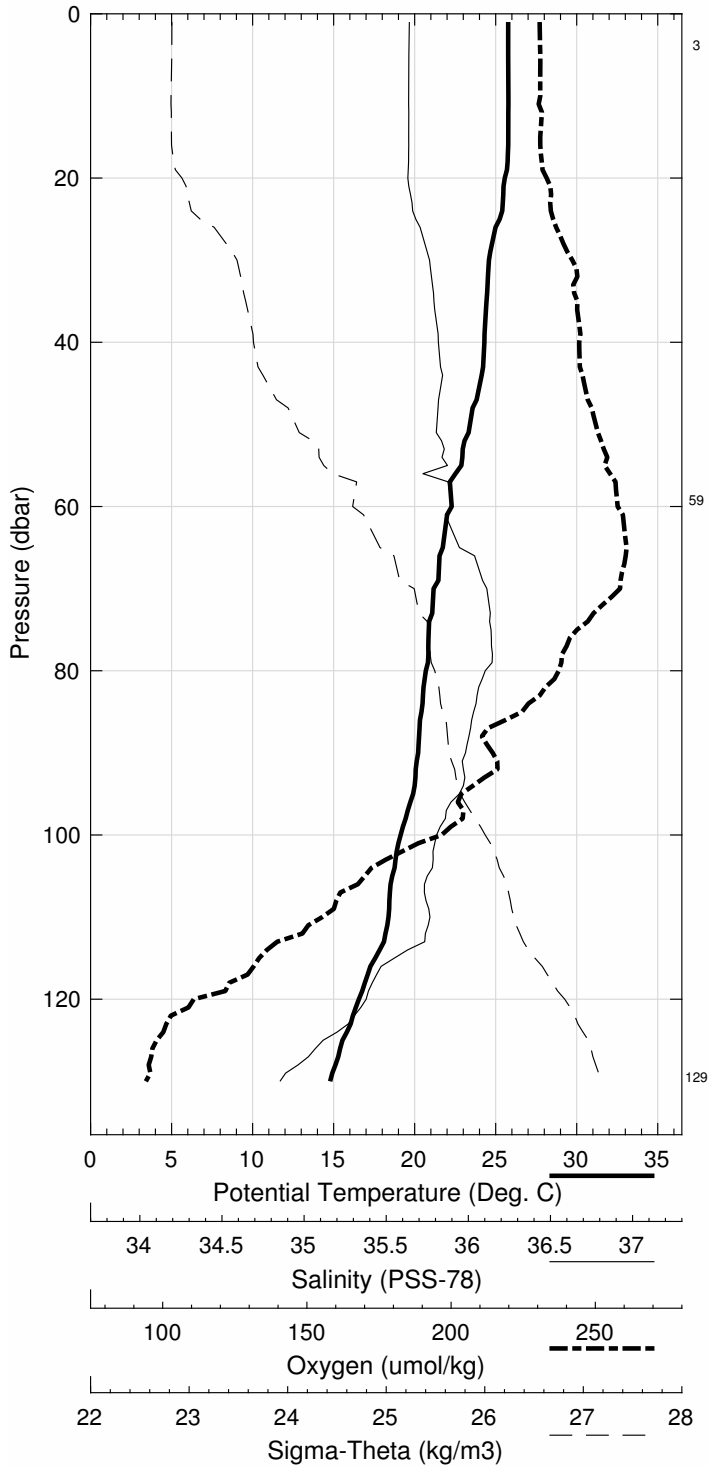


Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 41 (CTD041)  
 Latitude 27.006N Longitude 79.932W  
 31-Mar-2014 02:23Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$	DynHt $\text{m}^2\cdot\text{s}^{-2}$	SigT $\text{kg}\cdot\text{m}^{-3}$
1	25.772	25.771	36.269	205.1	0.004	24.062
10	25.786	25.784	36.267	205.2	0.038	24.057
20	25.565	25.561	36.265	206.4	0.077	24.125
30	24.590	24.583	36.322	211.0	0.113	24.468
50	23.420	23.410	36.342	215.3	0.180	24.832
75	20.885	20.871	36.485	211.9	0.247	25.660
100	19.153	19.135	36.341	187.4	0.303	26.012
125	15.563	15.543	36.041	135.8	0.347	26.653

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen $\mu\text{mol}\cdot\text{kg}^{-1}$
129	2	14.787	14.768	35.951	-999.0
59	4	22.037	22.026	36.402	-999.0
4	6	25.783	25.782	36.269	-999.0

Abaco March - April 2014 R/V Atlantic Explorer  
 CTD Station 41 (CTD041)  
 Latitude 27.006 N Longitude 79.932 W  
 31-Mar-2014 02:23 Z



*B WOCE Summary File*



Table 17: Abaco Cruise - WOCE Summary File

SHIP/CHS EXPOCODE	WOCE SECT	STN	CST	CST TYPE	CAST DATE	UTC TIME	EVENT CODE	LAT	LOE	NAV	UNC DPH	HT-ABV BTM	WIRE OUT	MAX PRS	NO. BTLS	PARA- METERS	COMMENTS
WBTSAE	AB1403	1	1	ROS	03/16/2014	14:17	BE	25.953N	76.920W	GPS	4279	0	4329	4352	12	1,2	mistrisps on nisks 4,6,8
WBTSAE	AB1403	1	1	ROS	03/16/2014	16:00	BO	25.953N	76.920W	GPS							
WBTSAE	AB1403	1	1	ROS	03/16/2014	18:32	EN	25.961N	76.907W	GPS							
WBTSAE	AB1403	2	1	ROS	03/16/2014	23:17	BE	26.527N	76.884W	GPS							nisk 4 leaking bottom o-ring
WBTSAE	AB1403	2	1	ROS	03/16/2014	23:35	BO	26.531N	76.880W	GPS	445	22	452	449	9	1,2	
WBTSAE	AB1403	2	1	ROS	03/16/2014	23:57	EN	26.536N	76.875W	GPS							
WBTSAE	AB1403	3	1	ROS	03/17/2014	00:53	BE	26.520N	76.827W	GPS							
WBTSAE	AB1403	3	1	ROS	03/17/2014	01:27	BO	26.521N	76.820W	GPS	1321	21	1358	1336	14	1,2	nisks 2,4,7 leaking at top, 14 bottom leak
WBTSAE	AB1403	3	1	ROS	03/17/2014	02:11	EN	26.529N	76.807W	GPS							
WBTSAE	AB1403	4	1	ROS	03/17/2014	03:21	BO	26.499N	76.746W	GPS							
WBTSAE	AB1403	4	1	ROS	03/17/2014	05:24	BO	26.514N	76.743W	GPS							
WBTSAE	AB1403	4	1	ROS	03/17/2014	11:18	EN	26.516N	76.724W	GPS	3857	25	4016	3922	12	1,2	nisk 6 bad vent cap, petcock leak, 22 open
WBTSAE	AB1403	5	1	ROS	03/17/2014	15:36	BE	26.499N	76.658W	GPS							
WBTSAE	AB1403	5	1	ROS	03/17/2014	17:06	BO	26.505N	76.649W	GPS	4514	24	4622	4593	24	1,2	
WBTSAE	AB1403	5	1	ROS	03/17/2014	19:13	EN	26.497N	76.646W	GPS							
WBTSAE	AB1403	6	1	ROS	03/17/2014	20:25	BE	26.504N	76.559W	GPS							
WBTSAE	AB1403	6	1	ROS	03/17/2014	22:02	BO	26.499N	76.551W	GPS	4816	23	4894	4904	24	1,2	
WBTSAE	AB1403	6	1	ROS	03/17/2014	00:25	EN	26.492N	76.544W	GPS							
WBTSAE	AB1403	7	1	ROS	03/18/2014	01:46	BE	26.503N	76.475W	GPS							
WBTSAE	AB1403	7	1	ROS	03/18/2014	03:21	BO	26.496N	76.470W	GPS	4823	21	4928	4912	24	1,2	loose vent cap, leaking petcock
WBTSAE	AB1403	7	1	ROS	03/18/2014	05:37	EN	26.495N	76.440W	GPS							
WBTSAE	AB1403	8	1	ROS	03/18/2014	07:13	BE	26.503N	76.348W	GPS							
WBTSAE	AB1403	8	1	ROS	03/18/2014	08:50	BO	26.498N	76.337W	GPS	4805	27	4965	4900	24	1,2	nisking 1 petcock broken during recovery
WBTSAE	AB1403	8	1	ROS	03/18/2014	11:12	EN	26.480N	76.313W	GPS							
WBTSAE	AB1403	9	1	ROS	03/19/2014	05:04	BE	26.482N	76.221W	GPS							
WBTSAE	AB1403	9	1	ROS	03/19/2014	06:40	BO	26.497N	76.222W	GPS	4796	20	4858	4884	24	1,2	
WBTSAE	AB1403	9	1	ROS	03/19/2014	08:53	EN	26.504N	76.217W	GPS							
WBTSAE	AB1403	10	1	ROS	03/19/2014	10:26	BE	26.500N	76.082W	GPS							
WBTSAE	AB1403	10	1	ROS	03/19/2014	12:00	BO	26.496N	76.087W	GPS	4778	21	4889	4867	24	1,2	nisk 1 bad vent cap seal
WBTSAE	AB1403	10	1	ROS	03/19/2014	14:12	EN	26.499N	76.091W	GPS							
WBTSAE	AB1403	11	1	ROS	03/19/2014	16:02	BE	26.502N	75.902W	GPS							
WBTSAE	AB1403	11	1	ROS	03/19/2014	17:36	BO	26.502N	75.901W	GPS	4721	20	4872	4808	24	1,2	nisk 10 lanyard caught in bottom
WBTSAE	AB1403	11	1	ROS	03/19/2014	19:46	EN	26.498N	75.907W	GPS							
WBTSAE	AB1403	12	1	ROS	03/19/2014	21:10	BE	26.499N	75.705W	GPS							
WBTSAE	AB1403	12	1	ROS	03/19/2014	22:42	BO	26.499N	75.703W	GPS	4667	22	4773	4753	23	1,2	nisk 24 not fired
WBTSAE	AB1403	12	1	ROS	03/20/2014	00:55	EN	26.499N	75.704W	GPS							
WBTSAE	AB1403	13	1	ROS	03/20/2014	03:08	BE	26.500N	75.500W	GPS							
WBTSAE	AB1403	13	1	ROS	03/20/2014	04:42	BO	26.504N	75.498W	GPS	4665	20	4765	4749	23	1,2	nisk 12 bad bottom leak
WBTSAE	AB1403	13	1	ROS	03/20/2014	06:59	EN	26.498N	75.498W	GPS							
WBTSAE	AB1403	14	1	ROS	03/20/2014	08:39	BE	26.501N	75.303W	GPS							
WBTSAE	AB1403	14	1	ROS	03/20/2014	10:14	BO	26.501N	75.301W	GPS	4620	15	4712	4704	24	1,2	
WBTSAE	AB1403	14	1	ROS	03/20/2014	12:21	EN	26.502N	75.296W	GPS							
WBTSAE	AB1403	15	1	ROS	03/20/2014	14:49	BE	26.500N	75.083W	GPS							
WBTSAE	AB1403	15	1	ROS	03/20/2014	16:15	BO	26.508N	75.079W	GPS	4586	20	4647	4668	24	1,2	nisk 6 bottom cap leak
WBTSAE	AB1403	15	1	ROS	03/20/2014	18:18	EN	26.500N	75.070W	GPS							
WBTSAE	AB1403	16	1	ROS	03/20/2014	19:48	BE	26.501N	74.800W	GPS							
WBTSAE	AB1403	16	1	ROS	03/20/2014	21:20	BO	26.501N	74.798W	GPS	4519	18	4596	4600	24	1,2	nisk 6 bottom cap leak
WBTSAE	AB1403	16	1	ROS	03/20/2014	23:22	EN	26.503N	74.800W	GPS							
WBTSAE	AB1403	17	1	ROS	03/21/2014	01:07	BE	26.499N	74.520W	GPS							
WBTSAE	AB1403	17	1	ROS	03/21/2014	02:32	BO	26.511N	74.518W	GPS	4470	20	4571	4550	24	1,2	nisk 6 bottom cap leak
WBTSAE	AB1403	17	1	ROS	03/21/2014	04:37	EN	26.530N	74.515W	GPS							
WBTSAE	AB1403	18	1	ROS	03/21/2014	06:22	BE	26.488N	74.230W	GPS							
WBTSAE	AB1403	18	1	ROS	03/21/2014	07:50	BO	26.502N	74.230W	GPS	4523	23	4593	4604	24	1,2	nisk 6 bottom cap leak, o-ring replaced
WBTSAE	AB1403	18	1	ROS	03/21/2014	09:59	EN	26.502N	74.233W	GPS							
WBTSAE	AB1403	19	1	ROS	03/21/2014	12:19	BE	26.499N	73.867W	GPS							
WBTSAE	AB1403	19	1	ROS	03/21/2014	13:52	BO	26.504N	73.871W	GPS	4720	20	4791	4806	24	1,2	
WBTSAE	AB1403	19	1	ROS	03/21/2014	16:01	EN	26.513N	73.875W	GPS							
WBTSAE	AB1403	20	1	ROS	03/21/2014	18:18	BE	26.498N	73.500W	GPS	4946	22	5012	5040	24	1,2	
WBTSAE	AB1403	20	1	ROS	03/21/2014	19:55	BO	26.496N	73.500W	GPS							
WBTSAE	AB1403	20	1	ROS	03/21/2014	22:06	EN	26.493N	73.502W	GPS							
WBTSAE	AB1403	21	1	ROS	03/22/2014	00:12	BE	26.498N	73.136W	GPS							
WBTSAE	AB1403	21	1	ROS	03/22/2014	01:51	BO	26.500N	73.133W	GPS	5030	20	5097	5125	24	1,2	

WBTSAE	AB1403	21	1	ROS	03/22/2014	04:07	EN	26.500N	73.132W	GPS	5014	118	5099	5108	24	1,2
WBTSAE	AB1403	22	1	ROS	03/22/2014	06:23	BE	26.502N	72.767W	GPS						
WBTSAE	AB1403	22	1	ROS	03/22/2014	08:03	BO	26.498N	72.769W	GPS						
WBTSAE	AB1403	22	1	ROS	03/22/2014	10:22	EN	26.520N	72.770W	GPS						
WBTSAE	AB1403	23	1	ROS	03/22/2014	12:36	BE	26.500N	72.384W	GPS						
WBTSAE	AB1403	23	1	ROS	03/22/2014	14:12	BO	26.504N	72.373W	GPS	5015	172	5099	5110	24	1,2
WBTSAE	AB1403	23	1	ROS	03/22/2014	16:29	EN	26.512N	72.360W	GPS						
WBTSAE	AB1403	24	1	ROS	03/22/2014	22:21	BE	26.502N	71.990W	GPS						
WBTSAE	AB1403	24	1	ROS	03/23/2014	00:21	BO	26.505N	71.983W	GPS	5018	259	5100	5113	24	1,2
WBTSAE	AB1403	24	1	ROS	03/23/2014	04:08	EN	26.525N	72.016W	GPS						
WBTSAE	AB1403	25	1	ROS	03/26/2014	00:50	BE	26.498N	76.092W	GPS						
WBTSAE	AB1403	25	1	ROS	03/26/2014	02:27	BO	26.501N	76.094W	GPS	4782	21	4850	4871	12	1,2
WBTSAE	AB1403	25	1	ROS	03/26/2014	05:26	EN	26.495N	76.109W	GPS						
WBTSAE	AB1403	26	1	ROS	03/27/2014	03:53	BO	26.484N	76.461W	GPS						
WBTSAE	AB1403	26	1	ROS	03/27/2014	05:35	BO	26.496N	76.473W	GPS	4820	17	4931	4908	12	1,2
WBTSAE	AB1403	26	1	ROS	03/27/2014	08:36	EN	26.508N	76.490W	GPS						
WBTSAE	AB1403	27	1	ROS	03/28/2014	03:41	BE	26.502N	76.749W	GPS						
WBTSAE	AB1403	27	1	ROS	03/28/2014	04:39	BO	26.501N	76.740W	GPS	282	19	3013	3006	4	1,2
WBTSAE	AB1403	27	1	ROS	03/28/2014	05:43	EN	26.503N	76.734W	GPS						
WBTSAE	AB1403	28	1	ROS	03/30/2014	02:32	BE	26.066N	78.849W	GPS						
WBTSAE	AB1403	28	1	ROS	03/30/2014	02:43	BO	26.065N	78.849W	GPS	437	19	282	284	5	1,2
WBTSAE	AB1403	28	1	ROS	03/30/2014	02:56	EN	26.065N	78.851W	GPS						
WBTSAE	AB1403	29	1	ROS	03/30/2014	03:41	BE	26.166N	78.800W	GPS						
WBTSAE	AB1403	29	1	ROS	03/30/2014	03:59	BO	26.166N	78.800W	GPS	499	18	440	441	6	1,2
WBTSAE	AB1403	29	1	ROS	03/30/2014	04:15	EN	26.166N	78.800W	GPS						
WBTSAE	AB1403	30	1	ROS	03/30/2014	05:07	BE	26.250N	78.769W	GPS						
WBTSAE	AB1403	30	1	ROS	03/30/2014	05:21	BO	26.254N	78.772W	GPS	673	19	505	503	6	1,2
WBTSAE	AB1403	30	1	ROS	03/30/2014	05:38	EN	26.255N	78.772W	GPS						
WBTSAE	AB1403	31	1	ROS	03/30/2014	06:26	BE	26.333N	78.719W	GPS						
WBTSAE	AB1403	31	1	ROS	03/30/2014	06:43	BO	26.333N	78.718W	GPS	732	20	682	679	7	1,2
WBTSAE	AB1403	31	1	ROS	03/30/2014	07:03	EN	26.339N	78.717W	GPS						
WBTSAE	AB1403	32	1	ROS	03/30/2014	07:56	BE	26.434N	78.662W	GPS						
WBTSAE	AB1403	32	1	ROS	03/30/2014	08:14	BO	26.437N	78.658W	GPS	464	21	758	740	5	1,2
WBTSAE	AB1403	32	1	ROS	03/30/2014	08:38	EN	26.441N	78.653W	GPS						
WBTSAE	AB1403	33	1	ROS	03/30/2014	15:57	BE	26.998N	79.198W	GPS						
WBTSAE	AB1403	33	1	ROS	03/30/2014	16:11	BO	26.998N	79.201W	GPS	596	19	472	468	6	1,2
WBTSAE	AB1403	33	1	ROS	03/30/2014	16:28	EN	27.000N	79.205W	GPS						
WBTSAE	AB1403	34	1	ROS	03/30/2014	17:05	BE	27.000N	79.280W	GPS						
WBTSAE	AB1403	34	1	ROS	03/30/2014	17:25	BO	27.003N	79.285W	GPS	654	21	609	602	6	1,2
WBTSAE	AB1403	34	1	ROS	03/30/2014	17:45	EN	27.010N	79.287W	GPS						
WBTSAE	AB1403	35	1	ROS	03/30/2014	18:26	BE	26.996N	79.372W	GPS						
WBTSAE	AB1403	35	1	ROS	03/30/2014	18:44	BO	27.005N	79.372W	GPS	742	20	670	661	7	1,2
WBTSAE	AB1403	35	1	ROS	03/30/2014	19:08	EN	27.010N	79.370W	GPS						
WBTSAE	AB1403	36	1	ROS	03/30/2014	20:00	BE	26.996N	79.497W	GPS						
WBTSAE	AB1403	36	1	ROS	03/30/2014	20:21	BO	27.007N	79.499W	GPS	634	20	765	748	6	1,2
WBTSAE	AB1403	36	1	ROS	03/30/2014	20:46	EN	27.016N	79.500W	GPS						
WBTSAE	AB1403	37	1	ROS	03/30/2014	21:40	BE	26.996N	79.613W	GPS						
WBTSAE	AB1403	37	1	ROS	03/30/2014	21:59	BO	27.006N	79.614W	GPS	514	20	651	640	6	1,2
WBTSAE	AB1403	37	1	ROS	03/30/2014	22:20	EN	27.016N	79.615W	GPS						
WBTSAE	AB1403	38	1	ROS	03/30/2014	22:58	BE	26.999N	79.685W	GPS						
WBTSAE	AB1403	38	1	ROS	03/30/2014	23:14	BO	27.008N	79.685W	GPS	366	20	520	519	5	1,2
WBTSAE	AB1403	38	1	ROS	03/30/2014	23:32	EN	27.020N	79.684W	GPS						
WBTSAE	AB1403	39	1	ROS	03/31/2014	00:22	BE	27.000N	79.786W	GPS						
WBTSAE	AB1403	39	1	ROS	03/31/2014	00:34	BO	27.005N	79.786W	GPS	248	22	368	370	4	1,2
WBTSAE	AB1403	39	1	ROS	03/31/2014	00:49	EN	27.011N	79.785W	GPS						
WBTSAE	AB1403	40	1	ROS	03/31/2014	01:27	BE	26.998N	79.865W	GPS						
WBTSAE	AB1403	40	1	ROS	03/31/2014	01:35	BO	27.004N	79.865W	GPS	129	20	260	252	3	1,2
WBTSAE	AB1403	40	1	ROS	03/31/2014	01:47	EN	27.012N	79.864W	GPS						

Note: Parameter 1 - salinity sampled, Parameter 2 - oxygen sampled

*C WOCE Bottle Summary File*





WBTSAE	AB1403	6	1	9	2	20140317	2329	26.493N	76.548W	1734	1753	3.793	34.971	2	262.6	2	262.6	2	262.6
WBTSAE	AB1403	6	1	10	2	20140317	2335	26.494N	76.547W	1516	1532	4.051	34.985	2	259.9	2	259.9	2	259.9
WBTSAE	AB1403	6	1	11	2	20140317	2341	26.493N	76.546W	1324	1337	4.431	35.009	2	252.7	2	252.7	2	252.7
WBTSAE	AB1403	6	1	12	2	20140317	2346	26.493N	76.546W	1155	1166	4.894	35.032	2	241.2	2	241.2	2	241.2
WBTSAE	AB1403	6	1	13	2	20140317	2350	26.492N	76.545W	986	995	5.902	35.068	2	210.0	2	210.0	2	210.0
WBTSAE	AB1403	6	1	14	2	20140317	2354	26.491N	76.545W	879	886	7.490	35.105	2	-999.0	9	-999.0	9	-999.0
WBTSAE	AB1403	6	1	15	2	20140317	2357	26.491N	76.545W	769	775	9.351	35.224	2	-999.0	9	-999.0	9	-999.0
WBTSAE	AB1403	6	1	16	2	20140318	0000	26.490N	76.545W	658	663	11.687	35.508	2	-999.0	9	-999.0	9	-999.0
WBTSAE	AB1403	6	1	17	2	20140318	0003	26.489N	76.545W	552	556	14.856	35.990	2	-999.0	9	-999.0	9	-999.0
WBTSAE	AB1403	6	1	18	2	20140318	0007	26.489N	76.544W	446	449	17.092	36.385	2	-999.0	9	-999.0	9	-999.0
WBTSAE	AB1403	6	1	19	2	20140318	0011	26.490N	76.544W	334	336	18.177	36.563	2	-999.0	9	-999.0	9	-999.0
WBTSAE	AB1403	6	1	20	2	20140318	0014	26.490N	76.544W	224	226	19.337	36.627	2	-999.0	9	-999.0	9	-999.0
WBTSAE	AB1403	6	1	21	2	20140318	0017	26.491N	76.544W	134	135	21.770	36.570	2	-999.0	9	-999.0	9	-999.0
WBTSAE	AB1403	6	1	22	2	20140318	0021	26.491N	76.544W	86	86	23.675	36.588	2	-999.0	9	-999.0	9	-999.0
WBTSAE	AB1403	6	1	23	2	20140318	0025	26.491N	76.544W	35	35	24.031	36.586	2	-999.0	9	-999.0	9	-999.0
WBTSAE	AB1403	6	1	24	2	20140318	0023	26.492N	76.544W	5	5	24.227	36.551	2	-999.0	9	-999.0	9	-999.0
WBTSAE	AB1403	7	1	1	2	20140318	0323	26.496N	76.470W	4823	4911	2.222	34.875	2	-999.0	9	-999.0	9	-999.0
WBTSAE	AB1403	7	1	2	2	20140318	0334	26.497N	76.468W	4453	4530	2.283	34.886	2	265.4	2	265.4	2	265.4
WBTSAE	AB1403	7	1	3	2	20140318	0345	26.498N	76.464W	4092	4159	2.291	34.891	2	267.4	2	267.4	2	267.4
WBTSAE	AB1403	7	1	4	2	20140318	0355	26.498N	76.462W	3713	3771	2.277	34.899	2	269.2	2	269.2	2	269.2
WBTSAE	AB1403	7	1	5	2	20140318	0404	26.498N	76.460W	3352	3401	2.542	34.910	2	269.3	2	269.3	2	269.3
WBTSAE	AB1403	7	1	6	2	20140318	0414	26.498N	76.458W	2956	2996	2.799	34.926	2	267.2	2	267.2	2	267.2
WBTSAE	AB1403	7	1	7	2	20140318	0425	26.498N	76.456W	2533	2566	3.147	34.945	2	264.5	2	264.5	2	264.5
WBTSAE	AB1403	7	1	8	2	20140318	0434	26.498N	76.453W	2140	2165	3.448	34.957	2	264.4	2	264.4	2	264.4
WBTSAE	AB1403	7	1	9	2	20140318	0441	26.498N	76.452W	1835	1856	3.686	34.966	2	263.2	2	263.2	2	263.2
WBTSAE	AB1403	7	1	10	2	20140318	0447	26.497N	76.450W	1580	1597	3.964	34.979	2	260.2	2	260.2	2	260.2
WBTSAE	AB1403	7	1	11	2	20140318	0452	26.498N	76.449W	1388	1402	4.299	34.979	4	255.4	2	255.4	2	255.4
WBTSAE	AB1403	7	1	12	2	20140318	0456	26.498N	76.448W	1219	1230	4.654	35.017	2	247.1	2	247.1	2	247.1
WBTSAE	AB1403	7	1	13	2	20140318	0501	26.498N	76.447W	1051	1061	5.463	35.056	2	224.1	2	224.1	2	224.1
WBTSAE	AB1403	7	1	14	2	20140318	0504	26.497N	76.446W	943	951	6.421	35.079	2	188.9	4	188.9	4	188.9
WBTSAE	AB1403	7	1	15	2	20140318	0507	26.497N	76.445W	834	842	8.205	35.136	2	152.2	2	152.2	2	152.2
WBTSAE	AB1403	7	1	16	2	20140318	0510	26.497N	76.445W	726	736	10.451	35.344	2	139.3	2	139.3	2	139.3
WBTSAE	AB1403	7	1	17	2	20140318	0513	26.497N	76.444W	617	622	13.312	35.745	2	146.5	2	146.5	2	146.5
WBTSAE	AB1403	7	1	18	2	20140318	0516	26.497N	76.443W	508	512	16.002	36.187	2	174.9	2	174.9	2	174.9
WBTSAE	AB1403	7	1	19	2	20140318	0519	26.497N	76.443W	399	402	17.627	36.484	2	192.8	2	192.8	2	192.8
WBTSAE	AB1403	7	1	20	2	20140318	0522	26.496N	76.442W	292	294	18.468	36.633	4	194.3	2	194.3	2	194.3
WBTSAE	AB1403	7	1	21	2	20140318	0525	26.496N	76.442W	200	201	19.738	36.635	2	185.0	2	185.0	2	185.0
WBTSAE	AB1403	7	1	22	2	20140318	0528	26.496N	76.441W	119	120	22.392	36.699	4	193.2	2	193.2	2	193.2
WBTSAE	AB1403	7	1	23	2	20140318	0530	26.495N	76.441W	69	70	23.757	36.596	2	202.8	2	202.8	2	202.8
WBTSAE	AB1403	7	1	24	2	20140318	0533	26.495N	76.441W	5	5	24.244	36.557	2	-999.0	9	-999.0	9	-999.0
WBTSAE	AB1403	8	1	1	2	20140318	0853	26.497N	76.336W	4805	4892	2.236	34.881	2	-999.0	9	-999.0	9	-999.0
WBTSAE	AB1403	8	1	2	2	20140318	0902	26.497N	76.333W	4499	4577	2.265	34.884	2	264.1	2	264.1	2	264.1
WBTSAE	AB1403	8	1	3	2	20140318	0911	26.497N	76.331W	4170	4239	2.294	34.889	2	267.1	2	267.1	2	267.1
WBTSAE	AB1403	8	1	4	2	20140318	0921	26.496N	76.329W	3839	3899	2.342	34.896	2	269.5	2	269.5	2	269.5
WBTSAE	AB1403	8	1	5	2	20140318	0929	26.496N	76.326W	3510	3563	2.470	34.904	2	269.9	2	269.9	2	269.9
WBTSAE	AB1403	8	1	6	2	20140318	0940	26.495N	76.323W	3103	3147	2.716	34.920	2	268.2	2	268.2	2	268.2
WBTSAE	AB1403	8	1	7	2	20140318	0951	26.495N	76.320W	2698	2733	2.989	34.936	2	265.7	2	265.7	2	265.7
WBTSAE	AB1403	8	1	8	2	20140318	1001	26.494N	76.318W	2295	2323	3.331	34.952	2	264.3	2	264.3	2	264.3
WBTSAE	AB1403	8	1	9	2	20140318	1011	26.492N	76.316W	1937	1959	3.626	34.963	2	263.7	2	263.7	2	263.7
WBTSAE	AB1403	8	1	10	2	20140318	1018	26.491N	76.316W	1684	1702	3.835	34.973	2	261.9	2	261.9	2	261.9
WBTSAE	AB1403	8	1	11	2	20140318	1023	26.490N	76.316W	1490	1505	4.072	34.986	2	259.1	2	259.1	2	259.1
WBTSAE	AB1403	8	1	12	2	20140318	1028	26.489N	76.316W	1340	1353	4.311	34.998	2	255.0	2	255.0	2	255.0
WBTSAE	AB1403	8	1	13	2	20140318	1033	26.488N	76.315W	1163	1174	4.803	35.028	2	243.3	2	243.3	2	243.3
WBTSAE	AB1403	8	1	14	2	20140318	1037	26.488N	76.315W	978	987	5.930	35.066	2	209.3	2	209.3	2	209.3
WBTSAE	AB1403	8	1	15	2	20140318	1042	26.487N	76.315W	799	805	7.031	35.200	2	145.2	2	145.2	2	145.2
WBTSAE	AB1403	8	1	16	2	20140318	1045	26.486N	76.315W	689	695	11.425	35.469	2	143.0	2	143.0	2	143.0
WBTSAE	AB1403	8	1	17	2	20140318	1048	26.485N	76.315W	580	585	14.110	35.866	2	157.0	2	157.0	2	157.0
WBTSAE	AB1403	8	1	18	2	20140318	1051	26.485N	76.314W	474	478	16.311	36.242	2	178.8	2	178.8	2	178.8
WBTSAE	AB1403	8	1	19	2	20140318	1055	26.484N	76.314W	363	365	17.893	36.525	2	193.3	2	193.3	2	193.3
WBTSAE	AB1403	8	1	20	2	20140318	1058	26.483N	76.314W	253	255	18.746	36.603	2	190.2	2	190.2	2	190.2
WBTSAE	AB1403	8	1	21	2	20140318	1101	26.483N	76.314W	164	165	20.344	36.696	2	183.3	2	183.3	2	183.3
WBTSAE	AB1403	8	1	22	2	20140318	1103	26.482N	76.314W	99	100	23.006	36.657	2	205.5	2	205.5	2	205.5
WBTSAE	AB1403	8	1	23	2	20140318	1106	26.481N	76.314W	53	54	23.909	36.559	2	210.8	2	210.8	2	210.8
WBTSAE	AB1403	8	1	24	2	20140318	1109	26.481N	76.313W	4	4	24.227	36.553	2	-999.0	9	-999.0	9	-999.0
WBTSAE	AB1403	9	1	1	2	20140319	0641	26.497N	76.222W	4796	4883	2.244	34.878	2	-999.0	9	-999.0	9	-999.0
WBTSAE	AB1403	9	1	2	2	20140319	0652	26.497N	76.222W	4424	4500	2.308	34.889	2	266.7	2	266.7	2	266.7

WBTSAE	AB1403	9	1	3	2	2	20140319	0703	26.498N	76.222W	4034	4100	2.322	34.893	2	34.893	2	268.1	2	268.0
WBTSAE	AB1403	9	1	4	2	2	20140319	0712	26.498N	76.222W	3673	3730	2.383	34.899	2	34.898	2	269.5	2	269.6
WBTSAE	AB1403	9	1	5	2	2	20140319	0722	26.498N	76.222W	3302	3351	2.539	34.910	2	34.909	2	270.2	2	269.9
WBTSAE	AB1403	9	1	6	2	2	20140319	0734	26.498N	76.222W	2811	2849	2.874	34.931	2	34.930	2	266.3	2	266.7
WBTSAE	AB1403	9	1	7	2	2	20140319	0741	26.499N	76.221W	2400	2400	3.235	34.948	2	34.948	2	264.8	2	263.8
WBTSAE	AB1403	9	1	8	2	2	20140319	0751	26.499N	76.220W	2075	2099	3.455	34.957	6	34.956	6	264.1	2	264.1
WBTSAE	AB1403	9	1	9	2	2	20140319	0803	26.500N	76.220W	1761	1780	3.733	34.968	2	34.966	2	263.2	2	263.3
WBTSAE	AB1403	9	1	10	2	2	20140319	0809	26.500N	76.220W	1588	1605	3.879	34.976	2	34.975	2	261.9	2	261.6
WBTSAE	AB1403	9	1	11	2	2	20140319	0808	26.500N	76.220W	1425	1439	4.152	34.990	2	34.988	2	257.8	2	257.5
WBTSAE	AB1403	9	1	12	2	2	20140319	0812	26.500N	76.219W	1256	1269	4.596	35.015	2	35.015	2	248.8	2	248.5
WBTSAE	AB1403	9	1	13	2	2	20140319	0816	26.500N	76.219W	1090	1100	5.161	35.040	2	35.040	2	232.4	2	233.5
WBTSAE	AB1403	9	1	14	2	2	20140319	0820	26.500N	76.219W	928	936	6.645	35.084	2	35.084	2	190.8	2	190.6
WBTSAE	AB1403	9	1	15	2	2	20140319	0824	26.500N	76.219W	818	825	8.606	35.167	2	35.167	2	148.7	2	147.9
WBTSAE	AB1403	9	1	16	2	2	20140319	0827	26.501N	76.219W	707	713	11.158	35.435	2	35.434	2	142.0	2	141.4
WBTSAE	AB1403	9	1	17	2	2	20140319	0830	26.501N	76.219W	597	602	13.539	35.773	2	35.773	2	149.4	2	150.8
WBTSAE	AB1403	9	1	18	2	2	20140319	0833	26.502N	76.219W	491	495	16.215	36.223	6	36.223	6	179.7	2	177.7
WBTSAE	AB1403	9	1	19	2	2	20140319	0836	26.502N	76.218W	381	384	17.810	36.514	2	36.514	2	193.6	2	194.7
WBTSAE	AB1403	9	1	20	2	2	20140319	0839	26.502N	76.218W	272	274	18.561	36.583	2	36.581	2	192.3	2	191.0
WBTSAE	AB1403	9	1	21	2	2	20140319	0842	26.502N	76.218W	183	184	20.042	36.656	2	36.656	2	190.7	2	190.6
WBTSAE	AB1403	9	1	22	2	2	20140319	0845	26.502N	76.218W	113	114	21.971	36.594	2	36.593	2	203.7	2	194.4
WBTSAE	AB1403	9	1	23	2	2	20140319	0848	26.503N	76.218W	63	64	23.298	36.585	2	36.585	2	204.1	2	207.2
WBTSAE	AB1403	9	1	24	2	2	20140319	0851	26.503N	76.217W	4	4	24.114	36.632	2	36.630	2	-999.0	9	-999.0
WBTSAE	AB1403	10	1	1	2	2	20140319	1202	26.496N	76.087W	4778	4864	2.293	34.883	2	34.883	2	-999.0	9	-999.0
WBTSAE	AB1403	10	1	2	2	2	20140319	1210	26.496N	76.088W	4520	4599	2.313	34.888	2	34.887	2	266.0	2	267.2
WBTSAE	AB1403	10	1	3	2	2	20140319	1221	26.496N	76.089W	4110	4178	2.334	34.893	2	34.893	2	268.1	2	268.7
WBTSAE	AB1403	10	1	4	2	2	20140319	1230	26.498N	76.090W	3781	3840	2.329	34.895	2	34.896	2	269.0	2	269.0
WBTSAE	AB1403	10	1	5	2	2	20140319	1239	26.498N	76.090W	3449	3500	2.416	34.902	6	34.902	6	270.0	2	270.0
WBTSAE	AB1403	10	1	6	2	2	20140319	1251	26.499N	76.091W	2960	3000	2.639	34.917	2	34.918	2	269.4	2	268.6
WBTSAE	AB1403	10	1	7	2	2	20140319	1302	26.500N	76.092W	2499	2499	3.095	34.943	2	34.944	2	265.6	2	264.3
WBTSAE	AB1403	10	1	8	2	2	20140319	1312	26.500N	76.093W	2074	2098	3.456	34.957	2	34.958	2	264.4	2	263.8
WBTSAE	AB1403	10	1	9	2	2	20140319	1318	26.501N	76.094W	1777	1796	3.748	34.968	2	34.969	2	263.6	2	262.6
WBTSAE	AB1403	10	1	10	2	2	20140319	1323	26.501N	76.095W	1591	1608	3.934	34.978	2	34.979	2	261.0	2	260.6
WBTSAE	AB1403	10	1	11	2	2	20140319	1330	26.502N	76.096W	1343	1356	4.261	34.994	2	34.995	2	255.9	2	256.2
WBTSAE	AB1403	10	1	12	2	2	20140319	1333	26.503N	76.096W	1184	1196	4.811	35.031	2	35.032	2	242.5	2	243.6
WBTSAE	AB1403	10	1	13	2	2	20140319	1338	26.503N	76.097W	1029	1038	5.689	35.065	2	35.066	2	216.7	2	215.8
WBTSAE	AB1403	10	1	14	2	2	20140319	1342	26.503N	76.096W	918	926	6.775	35.089	2	35.090	2	182.9	2	182.1
WBTSAE	AB1403	10	1	15	2	2	20140319	1345	26.502N	76.096W	803	809	9.122	35.210	2	35.211	2	144.7	2	143.8
WBTSAE	AB1403	10	1	16	2	2	20140319	1348	26.501N	76.095W	691	696	11.529	35.483	2	35.485	2	141.6	2	142.5
WBTSAE	AB1403	10	1	17	2	2	20140319	1351	26.501N	76.095W	583	588	14.455	35.919	2	35.918	2	161.6	2	157.6
WBTSAE	AB1403	10	1	18	2	2	20140319	1354	26.501N	76.094W	474	478	16.728	36.312	2	36.312	2	187.0	2	184.5
WBTSAE	AB1403	10	1	19	2	2	20140319	1357	26.501N	76.093W	365	368	17.850	36.518	2	36.517	6	193.4	2	195.0
WBTSAE	AB1403	10	1	20	2	2	20140319	1359	26.500N	76.093W	258	260	18.594	36.598	2	36.598	2	186.7	2	188.5
WBTSAE	AB1403	10	1	21	2	2	20140319	1402	26.500N	76.092W	167	168	20.374	36.666	2	36.666	2	187.9	2	186.8
WBTSAE	AB1403	10	1	22	2	2	20140319	1406	26.500N	76.092W	94	94	22.422	36.585	2	36.589	2	203.3	2	200.5
WBTSAE	AB1403	10	1	23	2	2	20140319	1408	26.499N	76.091W	43	43	23.766	36.616	2	36.616	2	210.8	2	210.0
WBTSAE	AB1403	10	1	24	2	2	20140319	1411	26.499N	76.091W	4	4	23.808	36.618	2	36.618	2	210.6	2	209.6
WBTSAE	AB1403	11	1	1	2	2	20140319	1737	26.502N	75.901W	4721	4806	2.226	34.877	2	34.876	2	-999.0	9	-999.0
WBTSAE	AB1403	11	1	2	2	2	20140319	1745	26.501N	75.901W	4452	4529	2.253	34.883	2	34.883	2	264.2	2	265.3
WBTSAE	AB1403	11	1	3	2	2	20140319	1753	26.501N	75.901W	4181	4250	2.282	34.889	2	34.888	2	266.7	2	267.0
WBTSAE	AB1403	11	1	4	2	2	20140319	1800	26.501N	75.901W	3910	3973	2.296	34.892	2	34.891	2	268.1	2	268.0
WBTSAE	AB1403	11	1	5	2	2	20140319	1808	26.501N	75.901W	3644	3700	2.326	34.896	2	34.896	2	269.2	2	269.2
WBTSAE	AB1403	11	1	6	2	2	20140319	1820	26.500N	75.902W	3160	3205	2.469	34.907	2	34.907	2	270.6	2	270.2
WBTSAE	AB1403	11	1	7	2	2	20140319	1832	26.500N	75.902W	2667	2702	2.888	34.933	2	34.933	2	266.2	2	266.4
WBTSAE	AB1403	11	1	8	2	2	20140319	1843	26.500N	75.903W	2226	2253	3.328	34.953	2	34.954	2	263.5	2	264.0
WBTSAE	AB1403	11	1	9	2	2	20140319	1851	26.499N	75.903W	1877	1898	3.686	34.969	6	34.968	6	263.2	2	263.4
WBTSAE	AB1403	11	1	10	2	2	20140319	1856	26.499N	75.903W	1632	1649	3.916	34.978	2	34.978	2	260.7	2	261.0
WBTSAE	AB1403	11	1	11	2	2	20140319	1903	26.499N	75.904W	1373	1387	4.294	35.000	2	34.999	2	255.2	2	255.5
WBTSAE	AB1403	11	1	12	2	2	20140319	1907	26.499N	75.904W	1208	1219	4.779	35.028	2	35.028	2	244.8	2	244.4
WBTSAE	AB1403	11	1	13	2	2	20140319	1913	26.499N	75.905W	1039	1048	5.679	35.066	2	35.066	2	217.3	2	215.9
WBTSAE	AB1403	11	1	14	2	2	20140319	1916	26.498N	75.905W	928	936	6.733	35.089	2	35.089	2	185.6	2	186.4
WBTSAE	AB1403	11	1	15	2	2	20140319	1919	26.498N	75.905W	821	828	8.778	35.164	2	35.167	2	137.0	2	145.1
WBTSAE	AB1403	11	1	16	2	2	20140319	1923	26.497N	75.905W	708	714	11.044	35.418	2	35.418	2	141.5	2	141.5
WBTSAE	AB1403	11	1	17	2	2	20140319	1926	26.498N	75.906W	601	606	13.742	35.805	2	35.809	2	158.3	2	157.6
WBTSAE	AB1403	11	1	18	2	2	20140319	1929	26.497N	75.906W	493	497	16.199	36.216	2	36.219	2	173.8	2	175.5
WBTSAE	AB1403	11	1	19	2	2	20140319	1932	26.497N	75.906W	383	386	17.746	36.504	2	36.504	2	186.8	2	187.0
WBTSAE	AB1403	11	1	20	2	2	20140319	1934	26.497N	75.907W	273	275	18.589	36.591	2	36.591	2			

WBTSAA	AB1403	11	1	21	2	20140319	1937	26.498N	75.907W	183	185	19.545	36.626	2	36.626	2	182.9	2	194.4
WBTSAA	AB1403	11	1	22	2	20140319	1939	26.498N	75.907W	119	120	21.708	36.578	2	36.575	2	202.6	2	214.7
WBTSAA	AB1403	11	1	23	2	20140319	1941	26.498N	75.907W	69	69	23.333	36.581	6	36.581	6	219.0	2	210.0
WBTSAA	AB1403	11	1	24	2	20140319	1945	26.498N	75.907W	4	4	24.430	36.652	2	36.652	2	-999.0	9	-999.0
WBTSAA	AB1403	12	1	1	2	20140319	2245	26.500N	75.703W	4667	4750	2.193	34.873	2	34.874	2	-999.0	9	-999.0
WBTSAA	AB1403	12	1	2	2	20140319	2254	26.499N	75.703W	4347	4421	2.219	34.881	2	34.882	2	263.1	2	264.2
WBTSAA	AB1403	12	1	3	2	20140319	2303	26.500N	75.703W	4014	4079	2.237	34.882	2	34.886	2	266.3	2	265.8
WBTSAA	AB1403	12	1	4	2	20140319	2312	26.498N	75.703W	3682	3739	2.270	34.892	2	34.893	2	268.5	2	267.5
WBTSAA	AB1403	12	1	5	2	20140319	2321	26.499N	75.703W	3353	3402	2.383	34.902	2	34.902	2	270.2	2	270.3
WBTSAA	AB1403	12	1	6	2	20140319	2334	26.499N	75.703W	2841	2880	2.778	34.925	2	34.926	2	267.7	2	267.7
WBTSAA	AB1403	12	1	7	2	20140319	2344	26.499N	75.703W	2431	2462	3.213	34.949	2	34.949	2	263.9	2	264.1
WBTSAA	AB1403	12	1	8	2	20140319	2353	26.499N	75.703W	2029	2053	3.557	34.961	2	34.961	2	264.0	2	264.1
WBTSAA	AB1403	12	1	9	2	20140320	0000	26.499N	75.703W	1727	1745	3.894	34.977	2	34.978	2	261.4	2	261.3
WBTSAA	AB1403	12	1	10	2	20140320	0005	26.499N	75.703W	1519	1534	4.187	34.995	6	34.995	6	257.3	2	257.1
WBTSAA	AB1403	12	1	11	2	20140320	0009	26.499N	75.703W	1350	1364	4.500	35.012	2	35.012	2	251.6	2	251.5
WBTSAA	AB1403	12	1	12	2	20140320	0014	26.499N	75.703W	1186	1197	5.009	35.040	2	35.040	2	239.0	2	238.4
WBTSAA	AB1403	12	1	13	2	20140320	0019	26.500N	75.703W	1015	1024	6.030	35.073	2	35.074	2	206.0	2	206.0
WBTSAA	AB1403	12	1	14	2	20140320	0023	26.500N	75.704W	909	917	7.229	35.096	2	35.096	2	173.1	2	171.4
WBTSAA	AB1403	12	1	15	2	20140320	0027	26.500N	75.704W	800	807	8.986	35.187	2	35.189	2	142.3	2	142.3
WBTSAA	AB1403	12	1	16	2	20140320	0031	26.498N	75.703W	688	694	11.589	35.491	2	35.494	2	143.2	2	146.2
WBTSAA	AB1403	12	1	17	2	20140320	0034	26.498N	75.703W	581	586	14.490	35.922	2	35.926	6	163.6	2	161.4
WBTSAA	AB1403	12	1	18	2	20140320	0037	26.499N	75.703W	470	474	16.771	36.323	2	36.324	2	179.7	2	189.0
WBTSAA	AB1403	12	1	19	2	20140320	0041	26.499N	75.703W	361	364	17.973	36.539	2	36.539	2	186.9	2	189.0
WBTSAA	AB1403	12	1	20	2	20140320	0044	26.500N	75.703W	254	256	18.653	36.595	2	36.595	2	190.3	2	189.0
WBTSAA	AB1403	12	1	21	2	20140320	0047	26.499N	75.704W	163	164	20.154	36.658	2	36.660	2	192.9	2	195.8
WBTSAA	AB1403	12	1	22	2	20140320	0049	26.499N	75.704W	109	110	21.954	36.603	2	36.600	2	209.9	2	212.7
WBTSAA	AB1403	12	1	23	2	20140320	0051	26.500N	75.704W	58	58	23.030	36.575	2	36.576	2	210.8	2	212.5
WBTSAA	AB1403	12	1	24	2	-999.000	-999.000	-999.000N	-999.000W	-999	-999	-999.000	-999.000	9	-999.000	9	-999.0	9	-999.0
WBTSAA	AB1403	13	1	1	2	20140320	0443	26.504N	75.498W	4665	4748	2.189	34.873	2	34.874	2	-999.0	9	-999.0
WBTSAA	AB1403	13	1	2	2	20140320	0451	26.505N	75.496W	4376	4451	2.224	34.882	2	34.882	2	263.1	2	264.6
WBTSAA	AB1403	13	1	3	2	20140320	0502	26.505N	75.494W	4073	4140	2.261	34.887	6	34.887	6	266.2	2	266.0
WBTSAA	AB1403	13	1	4	2	20140320	0510	26.505N	75.492W	3792	3851	2.421	34.891	2	34.891	2	267.7	2	267.3
WBTSAA	AB1403	13	1	5	2	20140320	0519	26.503N	75.491W	3499	3552	2.317	34.897	2	34.897	2	269.3	2	269.9
WBTSAA	AB1403	13	1	6	2	20140320	0530	26.502N	75.492W	3056	3099	2.547	34.912	2	34.913	2	269.8	2	270.4
WBTSAA	AB1403	13	1	7	2	20140320	0539	26.500N	75.493W	2665	2700	2.870	34.931	2	34.931	2	266.8	2	267.1
WBTSAA	AB1403	13	1	8	2	20140320	0547	26.499N	75.493W	2323	2351	3.231	34.952	2	34.952	2	263.8	2	264.7
WBTSAA	AB1403	13	1	9	2	20140320	0555	26.499N	75.495W	1978	2000	3.542	34.961	6	34.962	6	264.1	2	264.4
WBTSAA	AB1403	13	1	10	2	20140320	0609	26.499N	75.495W	1686	1704	3.947	34.979	2	34.980	2	260.5	2	260.9
WBTSAA	AB1403	13	1	11	2	20140320	0609	26.499N	75.495W	1436	1451	4.363	35.003	2	35.004	2	253.9	2	254.5
WBTSAA	AB1403	13	1	12	2	20140320	0617	26.499N	75.495W	1197	1208	5.079	35.046	2	-999.000	9	235.7	2	236.4
WBTSAA	AB1403	13	1	13	2	20140320	0622	26.498N	75.496W	1026	1035	6.067	35.075	2	35.076	2	204.5	2	201.8
WBTSAA	AB1403	13	1	14	2	20140320	0628	26.498N	75.496W	968	976	6.656	35.085	2	35.086	2	187.1	2	185.9
WBTSAA	AB1403	13	1	15	2	20140320	0632	26.498N	75.496W	796	803	9.366	35.225	2	35.228	2	142.5	2	141.9
WBTSAA	AB1403	13	1	16	2	20140320	0636	26.498N	75.496W	698	704	11.419	35.468	2	35.468	2	143.4	2	143.4
WBTSAA	AB1403	13	1	17	2	20140320	0635	26.498N	75.496W	591	596	14.247	35.884	2	35.888	2	161.2	2	163.4
WBTSAA	AB1403	13	1	18	2	20140320	0638	26.498N	75.496W	481	485	16.568	36.284	2	36.289	2	177.2	2	180.1
WBTSAA	AB1403	13	1	19	2	20140320	0641	26.498N	75.497W	371	374	17.798	36.511	2	36.511	2	193.0	2	193.3
WBTSAA	AB1403	13	1	20	2	20140320	0644	26.498N	75.497W	263	265	18.561	36.577	2	36.576	2	192.0	2	189.3
WBTSAA	AB1403	13	1	21	2	20140320	0647	26.498N	75.497W	174	175	20.057	36.654	2	36.653	2	185.4	2	197.8
WBTSAA	AB1403	13	1	22	2	20140320	0651	26.498N	75.497W	85	86	22.813	36.617	2	36.614	2	200.8	2	212.6
WBTSAA	AB1403	13	1	23	2	20140320	0653	26.498N	75.497W	34	34	24.198	36.634	2	36.633	2	209.6	2	209.4
WBTSAA	AB1403	13	1	24	2	-999.000	-999.000	-999.000N	-999.000W	-999	-999	-999.000	-999.000	9	-999.000	9	-999.0	9	-999.0
WBTSAA	AB1403	14	1	1	2	20140320	1015	26.500N	75.301W	4620	4702	2.189	34.872	2	34.873	2	-999.0	9	-999.0
WBTSAA	AB1403	14	1	2	2	20140320	1025	26.500N	75.301W	4289	4362	2.229	34.883	2	34.883	2	264.5	2	265.5
WBTSAA	AB1403	14	1	3	2	20140320	1036	26.498N	75.301W	3962	4026	2.240	34.887	2	34.886	2	266.5	2	266.6
WBTSAA	AB1403	14	1	4	2	20140320	1045	26.498N	75.300W	3635	3690	2.295	34.895	2	34.895	2	269.2	2	269.4
WBTSAA	AB1403	14	1	5	2	20140320	1054	26.498N	75.300W	3303	3351	2.424	34.904	2	34.904	2	270.6	2	270.9
WBTSAA	AB1403	14	1	6	2	20140320	1111	26.497N	75.301W	2545	2578	2.999	34.938	2	34.938	2	265.6	2	265.7
WBTSAA	AB1403	14	1	7	2	20140320	1114	26.498N	75.301W	2467	2498	3.078	34.942	2	34.943	6	265.2	2	266.1
WBTSAA	AB1403	14	1	8	2	20140320	1123	26.499N	75.300W	2076	2100	3.478	34.959	2	34.959	2	264.5	2	264.6
WBTSAA	AB1403	14	1	9	2	20140320	1129	26.499N	75.300W	1831	1851	3.743	34.969	6	34.969	6	263.0	2	263.4
WBTSAA	AB1403	14	1	10	2	20140320	1134	26.499N	75.300W	1582	1599	4.135	34.989	2	34.989	2	258.3	2	258.7
WBTSAA	AB1403	14	1	11	2	20140320	1140	26.500N	75.301W	1373	1387	4.508	35.012	2	35.012	2	250.9	2	251.5
WBTSAA	AB1403	14	1	12	2	20140320	1144	26.501N	75.301W	1206	1218	5.141	35.046	2	35.049	2	234.2	2	234.7
WBTSAA	AB1403	14	1	13	2	20140320	1148	26.501N	75.300W	1042	1051	6.129	35.075	2	35.072	2	202.8	2	203.3
WBTSAA	AB1403	14	1	14	2	20140320	1151	26.501N	75.300W	933	941	7.510	35.116	2	35.109	2	162.2	2	162.3



WBTSAE	AB1403	14	1	15	2	20140320	1154	26.501N	75.299W	823	830	9.228	35.210	2	35.211	2	141.3	2	143.2	2
WBTSAE	AB1403	14	1	16	2	20140320	1157	26.501N	75.299W	713	719	11.408	35.467	2	35.467	2	141.8	2	143.5	2
WBTSAE	AB1403	14	1	17	2	20140320	1200	26.501N	75.298W	604	609	14.189	35.875	2	35.878	2	160.0	2	160.7	4
WBTSAE	AB1403	14	1	18	2	20140320	1203	26.501N	75.298W	495	499	16.606	36.295	2	36.295	2	177.9	2	179.8	4
WBTSAE	AB1403	14	1	19	2	20140320	1206	26.501N	75.297W	385	388	17.471	36.499	2	36.500	2	191.8	2	194.0	2
WBTSAE	AB1403	14	1	20	2	20140320	1209	26.501N	75.297W	296	298	18.447	36.577	2	36.572	2	189.4	2	189.4	2
WBTSAE	AB1403	14	1	21	2	20140320	1212	26.501N	75.296W	188	190	20.293	36.685	2	36.685	2	184.2	2	197.2	4
WBTSAE	AB1403	14	1	22	2	20140320	1215	26.502N	75.296W	117	118	22.813	36.700	2	36.689	4	193.5	2	198.1	4
WBTSAE	AB1403	14	1	23	2	20140320	1217	26.501N	75.296W	69	70	24.608	36.635	2	36.632	2	-999.0	9	-999.0	9
WBTSAE	AB1403	14	1	24	2	20140320	1220	26.502N	75.295W	2	2	24.960	36.660	2	36.660	2	-999.0	9	-999.0	9
WBTSAE	AB1403	15	1	1	2	20140320	1617	26.508N	75.078W	4586	4667	2.215	34.877	2	34.877	2	-999.0	9	-999.0	9
WBTSAE	AB1403	15	1	2	2	20140320	1620	26.508N	75.078W	4306	4379	2.247	34.884	2	34.884	2	264.8	2	265.8	2
WBTSAE	AB1403	15	1	3	2	20140320	1623	26.507N	75.077W	4026	4091	2.263	34.888	2	34.888	2	266.7	2	266.8	2
WBTSAE	AB1403	15	1	4	2	20140320	1641	26.507N	75.077W	3742	3801	2.290	34.893	2	34.893	2	268.6	2	268.1	2
WBTSAE	AB1403	15	1	5	2	20140320	1648	26.507N	75.076W	3449	3500	2.340	34.898	2	34.897	6	270.2	2	269.9	2
WBTSAE	AB1403	15	1	6	2	20140320	1700	26.506N	75.075W	2959	3000	2.631	34.917	2	34.917	2	269.3	2	269.3	2
WBTSAE	AB1403	15	1	7	2	20140320	1709	26.505N	75.075W	2615	2649	2.911	34.931	2	34.931	2	266.4	2	266.6	2
WBTSAE	AB1403	15	1	8	2	20140320	1717	26.504N	75.074W	2224	2251	3.279	34.952	2	34.951	2	264.3	2	264.3	2
WBTSAE	AB1403	15	1	9	2	20140320	1727	26.504N	75.073W	1801	1821	3.744	34.968	2	34.968	2	263.1	2	263.5	2
WBTSAE	AB1403	15	1	10	2	20140320	1733	26.504N	75.073W	1529	1545	4.129	34.989	2	34.988	2	258.1	2	258.1	2
WBTSAE	AB1403	15	1	11	2	20140320	1738	26.503N	75.072W	1342	1355	4.563	35.013	2	35.016	2	249.9	2	250.2	2
WBTSAE	AB1403	15	1	12	2	20140320	1742	26.503N	75.072W	1174	1185	5.275	35.049	2	35.049	2	230.1	2	230.3	2
WBTSAE	AB1403	15	1	13	2	20140320	1746	26.503N	75.072W	1005	1014	6.813	35.078	2	35.078	2	178.3	2	178.8	2
WBTSAE	AB1403	15	1	14	2	20140320	1749	26.502N	75.072W	894	902	8.563	35.150	2	35.149	2	145.2	2	147.6	2
WBTSAE	AB1403	15	1	15	2	20140320	1752	26.502N	75.072W	804	811	10.037	35.294	2	35.294	2	139.4	2	140.5	2
WBTSAE	AB1403	15	1	16	2	20140320	1755	26.502N	75.071W	694	700	12.578	35.629	6	35.628	6	147.0	2	147.3	2
WBTSAE	AB1403	15	1	17	2	20140320	1758	26.502N	75.071W	585	590	15.173	36.040	2	36.041	2	166.6	2	164.6	2
WBTSAE	AB1403	15	1	18	2	20140320	1801	26.501N	75.071W	477	480	17.154	36.394	2	36.393	2	181.3	2	182.6	4
WBTSAE	AB1403	15	1	19	2	20140320	1804	26.501N	75.071W	367	370	17.964	36.537	2	36.536	2	185.8	2	186.9	4
WBTSAE	AB1403	15	1	20	2	20140320	1807	26.501N	75.070W	258	259	19.052	36.644	2	36.644	2	182.6	2	186.1	4
WBTSAE	AB1403	15	1	21	2	20140320	1810	26.501N	75.070W	169	170	20.618	36.709	2	36.708	2	184.7	2	185.2	4
WBTSAE	AB1403	15	1	22	2	20140320	1812	26.501N	75.070W	103	104	23.611	36.691	2	36.691	2	193.3	2	207.4	4
WBTSAE	AB1403	15	1	23	2	20140320	1814	26.500N	75.070W	54	55	25.200	36.665	2	36.666	2	-999.0	9	-999.0	9
WBTSAE	AB1403	15	1	24	2	20140320	1817	26.500N	75.070W	4	4	25.340	36.666	2	36.667	2	-999.0	9	-999.0	9
WBTSAE	AB1403	16	1	1	2	20140320	2121	26.501N	74.798W	4519	4598	2.174	34.877	2	-999.000	9	-999.0	9	-999.0	9
WBTSAE	AB1403	16	1	2	2	20140320	2131	26.502N	74.799W	4205	4276	2.221	34.887	2	-999.000	9	264.6	2	265.3	2
WBTSAE	AB1403	16	1	3	2	20140320	2139	26.502N	74.799W	3888	3950	2.233	34.881	2	-999.000	9	266.8	2	266.5	2
WBTSAE	AB1403	16	1	4	2	20140320	2148	26.503N	74.800W	3567	3621	2.272	34.897	2	-999.000	9	269.0	2	267.9	2
WBTSAE	AB1403	16	1	5	2	20140320	2156	26.503N	74.799W	3254	3301	2.379	34.905	2	-999.000	9	270.8	2	270.3	2
WBTSAE	AB1403	16	1	6	2	20140320	2207	26.503N	74.799W	2763	2800	2.763	34.928	2	-999.000	9	268.2	2	268.5	2
WBTSAE	AB1403	16	1	7	2	20140320	2216	26.502N	74.800W	2371	2400	3.167	34.952	2	-999.000	9	263.8	2	265.3	2
WBTSAE	AB1403	16	1	8	2	20140320	2222	26.501N	74.800W	2123	2148	3.405	34.958	2	-999.000	9	264.4	2	265.1	2
WBTSAE	AB1403	16	1	9	2	20140320	2227	26.501N	74.800W	1899	1920	3.644	34.966	2	-999.000	9	264.0	2	264.1	2
WBTSAE	AB1403	16	1	10	2	20140320	2234	26.500N	74.800W	1604	1620	4.091	34.988	2	-999.000	9	258.7	2	258.9	2
WBTSAE	AB1403	16	1	11	2	20140320	2239	26.500N	74.799W	1380	1394	4.583	35.016	2	-999.000	9	249.6	2	250.1	2
WBTSAE	AB1403	16	1	12	2	20140320	2243	26.500N	74.799W	1214	1226	5.221	35.048	2	-999.000	9	231.2	2	232.0	2
WBTSAE	AB1403	16	1	13	2	20140320	2247	26.499N	74.799W	1046	1056	6.234	35.083	2	-999.000	9	183.2	2	182.5	4
WBTSAE	AB1403	16	1	14	2	20140320	2251	26.499N	74.799W	936	944	8.044	35.133	2	-999.000	9	154.1	2	153.1	2
WBTSAE	AB1403	16	1	15	2	20140320	2254	26.499N	74.799W	829	836	9.857	35.278	2	-999.000	9	139.2	2	139.0	2
WBTSAE	AB1403	16	1	16	2	20140320	2257	26.499N	74.799W	719	725	12.043	35.556	2	-999.000	9	143.7	2	142.6	2
WBTSAE	AB1403	16	1	17	2	20140320	2300	26.499N	74.799W	612	617	14.718	35.965	2	-999.000	9	161.1	2	160.5	2
WBTSAE	AB1403	16	1	18	2	20140320	2303	26.500N	74.800W	500	504	16.839	36.337	2	-999.000	9	185.4	2	183.5	2
WBTSAE	AB1403	16	1	19	2	20140320	2306	26.500N	74.800W	391	394	18.722	36.545	2	-999.000	9	185.1	2	195.1	4
WBTSAE	AB1403	16	1	20	2	20140320	2309	26.501N	74.800W	282	284	18.776	36.589	2	-999.000	9	186.2	2	186.8	4
WBTSAE	AB1403	16	1	21	2	20140320	2312	26.501N	74.800W	192	193	21.104	36.818	2	-999.000	9	193.3	2	193.0	2
WBTSAE	AB1403	16	1	22	2	20140320	2315	26.502N	74.800W	114	114	24.479	36.871	2	-999.000	9	206.9	2	208.2	2
WBTSAE	AB1403	16	1	23	2	20140320	2317	26.502N	74.800W	64	64	24.780	36.654	2	-999.000	9	208.4	2	206.5	2
WBTSAE	AB1403	16	1	24	2	20140320	2320	26.502N	74.800W	3	3	25.326	36.638	2	-999.000	9	-999.0	9	-999.0	9
WBTSAE	AB1403	17	1	1	2	20140321	0235	26.512N	74.518W	4470	4548	2.174	34.879	2	-999.000	9	-999.0	9	-999.0	9
WBTSAE	AB1403	17	1	2	2	20140321	0244	26.513N	74.518W	4131	4199	2.206	34.887	2	-999.000	9	264.3	2	264.9	2
WBTSAE	AB1403	17	1	3	2	20140321	0254	26.514N	74.518W	3935	3999	2.224	34.890	2	-999.000	9	266.7	2	266.0	2
WBTSAE	AB1403	17	1	4	2	20140321	0259	26.516N	74.517W	3624	3679	2.284	34.898	2	-999.000	9	268.8	2	268.6	2
WBTSAE	AB1403	17	1	5	2	20140321	0306	26.516N	74.517W	3350	3399	2.377	34.905	2	-999.000	9	270.3	2	269.9	2
WBTSAE	AB1403	17	1	6	2	20140321	0316	26.517N	74.517W	2957	2998	2.641	34.921	2	-999.000	9	269.4	2	268.9	2
WBTSAE	AB1403	17	1	7	2	20140321	0325	26.519N	74.517W	2567	2599	2.986	34.940	2	-999.000	9	265.7	2	266.0	2
WBTSAE	AB1403	17	1	8	2	20140321	0334	26.520N	74.516W	2175	2201									



WBTSAE	AB1403	20	1	3	2	2	20140321	2018	26.496N	73.501W	4229	2.283	34.888	2	34.889	2	267.0	2	266.9	2
WBTSAE	AB1403	20	1	4	2	2	20140321	2026	26.497N	73.500W	3936	2.309	34.892	2	34.892	6	268.5	2	268.1	2
WBTSAE	AB1403	20	1	5	2	2	20140321	2035	26.497N	73.501W	3595	2.399	34.901	2	34.902	2	269.9	2	269.8	2
WBTSAE	AB1403	20	1	6	2	2	20140321	2046	26.496N	73.501W	3202	2.640	34.916	2	34.917	2	269.2	2	269.4	2
WBTSAE	AB1403	20	1	7	2	2	20140321	2057	26.496N	73.500W	2713	3.012	34.937	2	34.938	2	265.7	2	266.0	2
WBTSAE	AB1403	20	1	8	2	2	20140321	2108	26.493N	73.500W	2221	3.474	34.957	2	34.957	2	264.7	2	264.7	2
WBTSAE	AB1403	20	1	9	2	2	20140321	2116	26.495N	73.501W	1847	3.982	34.979	2	34.979	2	260.4	2	260.6	2
WBTSAE	AB1403	20	1	10	2	2	20140321	2123	26.494N	73.502W	1485	4.502	35.008	2	35.009	2	251.2	2	251.5	2
WBTSAE	AB1403	20	1	11	2	2	20140321	2127	26.494N	73.501W	1322	5.057	35.037	2	35.038	2	236.1	2	235.6	2
WBTSAE	AB1403	20	1	12	2	2	20140321	2131	26.494N	73.501W	1155	6.007	35.067	2	35.068	2	203.9	2	205.4	2
WBTSAE	AB1403	20	1	13	2	2	20140321	2135	26.494N	73.501W	985	7.812	35.089	2	35.089	2	152.0	2	149.9	2
WBTSAE	AB1403	20	1	14	2	2	20140321	2139	26.494N	73.501W	877	9.872	35.271	2	35.271	2	138.4	2	138.3	2
WBTSAE	AB1403	20	1	15	2	2	20140321	2141	26.493N	73.501W	766	12.245	35.584	2	35.578	2	145.8	2	144.9	2
WBTSAE	AB1403	20	1	16	2	2	20140321	2144	26.494N	73.501W	656	15.312	36.056	4	36.056	4	166.7	2	166.2	2
WBTSAE	AB1403	20	1	17	2	2	20140321	2147	26.493N	73.501W	551	17.383	36.434	6	36.434	6	190.1	2	189.0	2
WBTSAE	AB1403	20	1	18	2	2	20140321	2150	26.493N	73.502W	440	18.330	36.576	2	36.575	2	190.4	2	191.8	2
WBTSAE	AB1403	20	1	19	2	2	20140321	2153	26.493N	73.502W	331	19.126	36.586	2	36.586	2	198.5	2	189.5	4
WBTSAE	AB1403	20	1	20	2	2	20140321	2156	26.493N	73.502W	225	20.481	36.670	2	36.671	2	194.4	2	198.3	4
WBTSAE	AB1403	20	1	21	2	2	20140321	2159	26.493N	73.502W	133	23.265	36.784	2	36.784	2	187.7	2	202.9	4
WBTSAE	AB1403	20	1	22	2	2	20140321	2201	26.493N	73.502W	86	25.027	36.653	2	36.652	2	189.0	9	-999.0	9
WBTSAE	AB1403	20	1	23	2	2	20140321	2203	26.493N	73.503W	34	25.052	36.657	2	36.656	2	-999.0	9	-999.0	9
WBTSAE	AB1403	20	1	24	2	2	20140321	2205	26.493N	73.502W	2	25.115	36.658	2	36.658	2	-999.0	9	-999.0	9
WBTSAE	AB1403	21	1	1	2	2	20140322	0153	26.500N	73.133W	5030	1.523	34.866	2	34.865	2	262.3	2	264.0	2
WBTSAE	AB1403	21	1	2	2	2	20140322	0202	26.500N	73.133W	4753	2.244	34.878	6	34.876	6	265.6	2	265.9	2
WBTSAE	AB1403	21	1	3	2	2	20140322	0210	26.500N	73.134W	4471	4.548	34.884	2	34.882	2	267.3	2	267.3	2
WBTSAE	AB1403	21	1	4	2	2	20140322	0218	26.500N	73.133W	4180	4.249	34.889	2	34.888	2	269.2	2	268.8	2
WBTSAE	AB1403	21	1	5	2	2	20140322	0227	26.500N	73.133W	3912	2.923	34.894	2	34.892	2	270.4	2	270.4	2
WBTSAE	AB1403	21	1	6	2	2	20140322	0239	26.500N	73.133W	3423	2.483	34.904	2	34.904	2	270.4	2	270.4	2
WBTSAE	AB1403	21	1	7	2	2	20140322	0251	26.500N	73.133W	2933	2.800	34.925	2	34.923	2	268.2	2	268.2	2
WBTSAE	AB1403	21	1	8	2	2	20140322	0303	26.500N	73.133W	2442	3.182	34.944	2	34.944	2	265.0	2	265.0	2
WBTSAE	AB1403	21	1	9	2	2	20140322	0312	26.500N	73.133W	2025	3.748	34.965	2	34.965	2	262.9	2	263.7	2
WBTSAE	AB1403	21	1	10	2	2	20140322	0320	26.500N	73.133W	1682	4.105	34.987	2	34.983	2	258.6	2	259.2	2
WBTSAE	AB1403	21	1	11	2	2	20140322	0326	26.500N	73.133W	1435	4.472	35.006	2	35.003	2	251.6	2	252.6	2
WBTSAE	AB1403	21	1	12	2	2	20140322	0331	26.500N	73.133W	1187	5.446	35.054	2	35.051	2	224.0	2	225.6	2
WBTSAE	AB1403	21	1	13	2	2	20140322	0335	26.500N	73.133W	1019	7.029	35.088	2	35.088	2	175.9	2	175.9	2
WBTSAE	AB1403	21	1	14	2	2	20140322	0338	26.500N	73.133W	911	8.601	35.157	2	35.154	2	146.1	2	145.8	2
WBTSAE	AB1403	21	1	15	2	2	20140322	0341	26.500N	73.134W	802	10.668	35.369	6	35.367	6	139.9	2	141.7	2
WBTSAE	AB1403	21	1	16	2	2	20140322	0344	26.500N	73.133W	694	12.781	35.663	4	35.666	4	148.9	2	150.8	2
WBTSAE	AB1403	21	1	17	2	2	20140322	0347	26.500N	73.134W	586	15.411	36.074	2	36.074	2	168.5	2	168.2	2
WBTSAE	AB1403	21	1	18	2	2	20140322	0350	26.500N	73.133W	476	17.333	36.427	2	36.422	2	190.0	2	190.6	2
WBTSAE	AB1403	21	1	19	2	2	20140322	0353	26.500N	73.133W	366	18.289	36.575	2	36.571	2	182.2	2	193.1	4
WBTSAE	AB1403	21	1	20	2	2	20140322	0356	26.500N	73.133W	258	20.443	36.631	2	36.626	2	182.3	2	183.5	4
WBTSAE	AB1403	21	1	21	2	2	20140322	0359	26.500N	73.133W	168	22.937	36.723	2	36.726	2	194.0	2	196.0	2
WBTSAE	AB1403	21	1	22	2	2	20140322	0401	26.500N	73.133W	119	24.241	36.640	4	36.621	4	209.4	2	200.0	4
WBTSAE	AB1403	21	1	23	2	2	20140322	0403	26.500N	73.132W	69	24.241	36.645	2	36.643	2	209.4	2	208.1	2
WBTSAE	AB1403	21	1	24	2	2	20140322	0406	26.500N	73.132W	3	24.976	36.653	2	36.648	2	-999.0	9	-999.0	9
WBTSAE	AB1403	22	1	1	2	2	20140322	0804	26.498N	72.769W	5014	1.195	34.868	2	34.870	2	-999.0	9	-999.0	9
WBTSAE	AB1403	22	1	2	2	2	20140322	0818	26.501N	72.768W	4589	2.287	34.884	6	34.886	6	265.9	2	266.0	2
WBTSAE	AB1403	22	1	3	2	2	20140322	0824	26.502N	72.768W	4375	2.289	34.887	2	34.888	2	266.7	2	266.5	2
WBTSAE	AB1403	22	1	4	2	2	20140322	0834	26.504N	72.768W	4017	4.082	34.892	2	34.893	2	267.7	2	267.7	2
WBTSAE	AB1403	22	1	5	2	2	20140322	0844	26.506N	72.768W	3643	3.699	34.900	2	34.900	2	270.3	2	269.6	2
WBTSAE	AB1403	22	1	6	2	2	20140322	0856	26.508N	72.769W	3155	3.200	34.918	2	34.919	2	269.3	2	268.8	2
WBTSAE	AB1403	22	1	7	2	2	20140322	0908	26.510N	72.770W	2666	3.077	34.942	2	34.944	2	264.5	2	265.4	2
WBTSAE	AB1403	22	1	8	2	2	20140322	0919	26.511N	72.771W	2176	3.519	34.958	2	34.959	2	264.4	2	264.4	2
WBTSAE	AB1403	22	1	9	2	2	20140322	0926	26.512N	72.771W	1929	3.777	34.969	2	34.971	2	263.1	2	262.8	2
WBTSAE	AB1403	22	1	10	2	2	20140322	0934	26.514N	72.771W	1583	4.343	34.997	2	34.997	2	255.1	2	255.4	2
WBTSAE	AB1403	22	1	11	2	2	20140322	0939	26.514N	72.771W	1373	4.662	35.015	2	35.017	2	246.8	2	247.9	2
WBTSAE	AB1403	22	1	12	2	2	20140322	0943	26.515N	72.771W	1243	4.879	35.026	2	35.028	2	240.9	2	242.0	2
WBTSAE	AB1403	22	1	13	2	2	20140322	0947	26.515N	72.771W	1076	5.568	35.057	2	35.059	2	219.3	2	219.3	2
WBTSAE	AB1403	22	1	14	2	2	20140322	0951	26.516N	72.771W	938	6.946	35.076	2	35.076	2	156.4	2	158.9	4
WBTSAE	AB1403	22	1	15	2	2	20140322	0954	26.516N	72.771W	818	7.312	35.075	2	35.075	2	146.2	2	141.1	2
WBTSAE	AB1403	22	1	16	2	2	20140322	0957	26.517N	72.771W	710	11.997	35.556	2	35.556	2	150.3	2	147.8	2
WBTSAE	AB1403	22	1	17	2	2	20140322	1000	26.517N	72.771W	601	16.836	35.939	2	35.941	2	161.2	2	162.6	4
WBTSAE	AB1403	22	1	18	2	2	20140322	1004	26.517N	72.771W	492	17.816	36.335	2	36.338	2	185.3	2	183.7	2
WBTSAE	AB1403	22	1	19	2	2	20140322	1007	26.518N	72.771W	382	17.816	36.518	2	36.527	4	195.3	2	195.3	2
WBTSAE	AB1403	22	1	20	2	2	20140322	1010	26.518N	72.770W	273	18.486	36.563	2	36.563	2	193.0	2	191.7	4

WBTSAE	AB1403	22	1	21	2	20140322	1013	26.518N	72.770W	184	185	19,577	36,642	2	36,642	2	36,642	2	193.3	2	192.0
WBTSAE	AB1403	22	1	22	2	20140322	1016	26.519N	72.770W	104	105	21,000	36,562	2	36,562	2	36,562	2	201.1	2	195.0
WBTSAE	AB1403	22	1	23	2	20140322	1018	26.519N	72.770W	57	57	21,930	36,550	2	36,550	2	36,550	2	209.3	2	187.8
WBTSAE	AB1403	22	1	24	2	20140322	1021	26.519N	72.770W	3	3	22,900	36,602	2	36,602	2	36,602	2	205.5	2	200.1
WBTSAE	AB1403	23	1	1	2	20140322	1414	26.504N	72.373W	5015	5108	2,215	34,870	2	34,870	2	34,870	2	-999.0	9	-999.0
WBTSAE	AB1403	23	1	2	2	20140322	1421	26.505N	72.372W	4812	4812	2,308	34,881	2	34,881	2	34,881	2	264.1	2	264.4
WBTSAE	AB1403	23	1	3	2	20140322	1431	26.505N	72.370W	4470	4548	2,314	34,886	2	34,886	2	34,886	2	264.4	2	264.4
WBTSAE	AB1403	23	1	4	2	20140322	1440	26.505N	72.369W	4130	4198	2,314	34,891	2	34,891	2	34,891	2	268.3	2	265.8
WBTSAE	AB1403	23	1	5	2	20140322	1449	26.506N	72.368W	3790	3850	2,369	34,897	2	34,897	2	34,897	2	269.7	2	266.9
WBTSAE	AB1403	23	1	6	2	20140322	1501	26.506N	72.366W	3301	3349	2,570	34,912	2	34,912	2	34,912	2	269.2	2	269.0
WBTSAE	AB1403	23	1	7	2	20140322	1514	26.507N	72.365W	2812	2849	2,923	34,932	2	34,932	2	34,932	2	266.8	2	266.4
WBTSAE	AB1403	23	1	8	2	20140322	1525	26.508N	72.364W	2322	2350	3,365	34,954	2	34,954	2	34,954	2	264.7	2	264.7
WBTSAE	AB1403	23	1	9	2	20140322	1536	26.509N	72.363W	1828	1848	3,835	34,971	2	34,971	2	34,971	2	262.4	2	262.7
WBTSAE	AB1403	23	1	10	2	20140322	1604	26.511N	72.361W	1581	1598	4,131	34,987	2	34,987	2	34,987	2	258.9	2	258.9
WBTSAE	AB1403	23	1	11	2	20140322	1547	26.509N	72.362W	1362	1375	4,468	35,006	2	35,006	2	35,006	2	251.8	2	252.5
WBTSAE	AB1403	23	1	12	2	20140322	1551	26.510N	72.361W	1192	1204	4,964	35,033	2	35,033	2	35,033	2	239.9	2	239.9
WBTSAE	AB1403	23	1	13	2	20140322	1555	26.510N	72.361W	1026	1035	5,932	35,067	2	35,067	2	35,067	2	208.7	2	206.9
WBTSAE	AB1403	23	1	14	2	20140322	1558	26.510N	72.361W	916	925	7,559	35,106	2	35,106	2	35,106	2	162.6	2	160.1
WBTSAE	AB1403	23	1	15	2	20140322	1601	26.511N	72.361W	808	815	9,319	35,220	2	35,220	2	35,220	2	142.1	2	140.7
WBTSAE	AB1403	23	1	16	2	20140322	1604	26.511N	72.361W	699	705	11,431	35,470	2	35,470	2	35,470	2	145.1	2	143.3
WBTSAE	AB1403	23	1	17	2	20140322	1608	26.511N	72.360W	589	594	14,463	35,918	2	35,918	2	35,918	2	156.4	2	159.7
WBTSAE	AB1403	23	1	18	2	20140322	1611	26.511N	72.360W	480	484	16,732	36,316	2	36,316	2	36,316	2	183.7	2	183.3
WBTSAE	AB1403	23	1	19	2	20140322	1614	26.511N	72.360W	372	375	17,816	36,508	2	36,508	2	36,508	2	193.1	2	193.5
WBTSAE	AB1403	23	1	20	2	20140322	1617	26.512N	72.360W	262	264	18,419	36,551	2	36,551	2	36,551	2	196.6	2	192.5
WBTSAE	AB1403	23	1	21	2	20140322	1620	26.512N	72.360W	173	175	19,263	36,597	2	36,597	2	36,597	2	185.9	2	186.0
WBTSAE	AB1403	23	1	22	2	20140322	1622	26.512N	72.360W	113	114	20,971	36,589	2	36,589	2	36,589	2	201.2	2	194.7
WBTSAE	AB1403	23	1	23	2	20140322	1624	26.512N	72.360W	64	64	22,428	36,608	2	36,608	2	36,608	2	207.2	2	189.0
WBTSAE	AB1403	23	1	24	2	20140322	1628	26.512N	72.360W	4	4	23,300	36,623	2	36,623	2	36,623	2	204.9	2	200.6
WBTSAE	AB1403	24	1	1	2	20140323	0022	26.505N	71.983W	5018	5111	2,237	34,873	2	34,873	2	34,873	2	-999.0	9	-999.0
WBTSAE	AB1403	24	1	2	2	20140323	0026	26.505N	71.983W	4959	5051	2,251	34,875	2	34,875	2	34,875	2	262.2	2	262.4
WBTSAE	AB1403	24	1	3	2	20140323	0041	26.506N	71.986W	4651	4734	2,277	34,883	2	34,883	2	34,883	2	265.4	2	264.7
WBTSAE	AB1403	24	1	4	2	20140323	0055	26.507N	71.989W	4344	4418	2,284	34,887	2	34,887	2	34,887	2	266.9	2	265.8
WBTSAE	AB1403	24	1	5	2	20140323	0108	26.508N	71.991W	4033	4099	2,300	34,891	2	34,891	2	34,891	2	268.2	2	266.8
WBTSAE	AB1403	24	1	6	2	20140323	0126	26.510N	71.994W	3545	3599	2,401	34,901	2	34,901	2	34,901	2	270.3	2	268.4
WBTSAE	AB1403	24	1	7	2	20140323	0144	26.511N	71.997W	3056	3099	2,667	34,918	2	34,918	2	34,918	2	269.1	2	268.7
WBTSAE	AB1403	24	1	8	2	20140323	0201	26.512N	71.999W	2566	2599	3,066	34,942	2	34,942	2	34,942	2	264.7	2	265.5
WBTSAE	AB1403	24	1	9	2	20140323	0225	26.514N	72.003W	2074	2098	3,553	34,959	2	34,959	2	34,959	2	264.6	2	264.6
WBTSAE	AB1403	24	1	10	2	20140323	0314	26.518N	72.010W	1682	1700	3,957	34,979	2	34,979	2	34,979	2	260.6	2	261.2
WBTSAE	AB1403	24	1	11	2	20140323	0321	26.519N	72.011W	1402	1416	4,404	35,004	2	35,004	2	35,004	2	253.4	2	253.3
WBTSAE	AB1403	24	1	12	2	20140323	0326	26.519N	72.011W	1229	1241	4,882	35,031	2	35,031	2	35,031	2	242.0	2	242.1
WBTSAE	AB1403	24	1	13	2	20140323	0331	26.520N	72.012W	1054	1064	5,773	35,064	2	35,064	2	35,064	2	213.1	2	214.2
WBTSAE	AB1403	24	1	14	2	20140323	0336	26.520N	72.012W	900	908	7,562	35,102	2	35,102	2	35,102	2	161.9	2	161.7
WBTSAE	AB1403	24	1	15	2	20140323	0339	26.521N	72.013W	793	800	9,390	35,238	2	35,238	2	35,238	2	138.9	2	141.2
WBTSAE	AB1403	24	1	16	2	20140323	0343	26.521N	72.013W	684	690	11,746	35,516	2	35,516	2	35,516	2	143.5	2	144.7
WBTSAE	AB1403	24	1	17	2	20140323	0346	26.522N	72.014W	576	580	14,352	35,900	2	35,900	2	35,900	2	162.4	2	159.9
WBTSAE	AB1403	24	1	18	2	20140323	0349	26.522N	72.014W	466	470	16,729	36,315	2	36,315	2	36,315	2	182.5	2	182.5
WBTSAE	AB1403	24	1	19	2	20140323	0352	26.523N	72.015W	357	360	17,823	36,517	2	36,517	2	36,517	2	185.7	2	196.3
WBTSAE	AB1403	24	1	20	2	20140323	0355	26.523N	72.015W	248	250	18,538	36,586	2	36,586	2	36,586	2	188.2	2	185.6
WBTSAE	AB1403	24	1	21	2	20140323	0358	26.524N	72.016W	159	160	19,847	36,660	2	36,660	2	36,660	2	182.2	2	193.8
WBTSAE	AB1403	24	1	22	2	20140323	0400	26.524N	72.016W	93	94	21,600	36,625	2	36,625	2	36,625	2	205.6	2	193.9
WBTSAE	AB1403	24	1	23	2	20140323	0403	26.524N	72.016W	45	45	23,010	36,627	2	36,627	2	36,627	2	206.7	2	211.5
WBTSAE	AB1403	24	1	24	2	20140323	0405	26.525N	72.016W	3	3	23,744	36,616	2	36,616	2	36,616	2	203.9	2	204.0
WBTSAE	AB1403	25	1	1	2	20140326	0233	26.501N	76.095W	-999	-999	-999,000	-999,000	9	-999,000	9	-999,000	9	-999.0	9	-999.0
WBTSAE	AB1403	25	1	2	2	20140326	0301	26.502N	76.096W	4782	4869	2,233	34,876	2	34,876	2	34,876	2	-999.0	9	-999.0
WBTSAE	AB1403	25	1	3	2	20140326	0319	26.503N	76.096W	-999	-999	-999,000	-999,000	9	-999,000	9	-999,000	9	-999.0	9	-999.0
WBTSAE	AB1403	25	1	4	2	20140326	0336	26.504N	76.097W	3937	4001	2,321	34,893	2	34,893	2	34,893	2	-999.0	9	-999.0
WBTSAE	AB1403	25	1	5	2	20140326	0353	26.505N	76.097W	-999	-999	-999,000	-999,000	9	-999,000	9	-999,000	9	-999.0	9	-999.0
WBTSAE	AB1403	25	1	6	2	20140326	0408	26.504N	76.100W	3446	3498	2,456	34,904	2	34,904	2	34,904	2	-999.0	9	-999.0
WBTSAE	AB1403	25	1	7	2	20140326	0425	26.502N	76.102W	-999	-999	-999,000	-999,000	9	-999,000	9	-999,000	9	-999.0	9	-999.0
WBTSAE	AB1403	25	1	8	2	20140326	0445	26.500N	76.104W	2960	3001	2,782	34,924	2	34,924	2	34,924	2	-999.0	9	-999.0
WBTSAE	AB1403	25	1	9	2	20140326	0456	26.500N	76.106W	-999	-999	-999,000	-999,000	9	-999,000	9	-999,000	9	-999.0	9	-999.0
WBTSAE	AB1403	25	1	10	2	20140326	0507	26.499N	76.107W	2467	2498	3,145	34,948	2	34,948	2	34,948	2	-999.0	9	-999.0
WBTSAE																					













