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The findings and conclusion on this report are those of the authors and do not necessarily represent the views of the funding agency.

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Abstract

This report presents final calibrated conductivity, temperature, depth (CTD) data collected during the Western Boundary Time Series project (WBTS) research cruise AB1811, which took place between November 17 and December 3, 2018, aboard the UNOLS ship R/V *Atlantic Explorer*. Funded through the Climate Program Office (CPO) of the National Oceanic and Atmospheric Administration (NOAA), this WBTS survey was completed as part of a long term effort to monitor the temporal and spatial variability of the circulation and water mass properties at the western boundary of the North Atlantic Ocean. A brief narrative of all scientific operations conducted during AB1811 is also included.

1 Introduction

The "Abaco" oceanographic time series began in August 1984 when NOAA expanded its Straits of Florida program (now part of the WBTS project) to include in situ measurements east the Bahamas in the North Atlantic Ocean. Since then, 49 shipboard surveys have collected water mass property data, and many have collected current velocity data, along a zonal section east of Abaco Island, Bahamas at a nominal latitude of 26.5°N. Initially only extending across the Antilles Current and a portion of the Deep Western Boundary Current (DWBC), research cruises now reach farther eastward into the North Atlantic Subtropical Gyre interior capturing a portion of the DWBC recirculation. Observations associated with these surveys have typically been made using CTD hydrography methods, often augmented either initially with Pegasus (Spain et al., 1981), or later with lowered Acoustic doppler current profiler (LADCP; Firing, 1991) measurements to obtain ocean current velocity. Transient tracer (CFC) measurements have also been collected on eight of these sections.

In addition to shipboard surveys of the Abaco section, a moored current meter array was deployed by collaborators at the University of Miami from April 1986 to April 1997. This was followed in March 2004 by an international trans-basin instrument array (of which the Abaco section is a component), funded by the United Kingdom's Natural Environment Research Council and the United States' National Science Foundation. Current meter moorings along the Abaco section, funded through these programs, are maintained by partners at the University of Miami and at the National Oceanography Centre. Concurrently with these efforts, an array of pressure equipped inverted echo sounders (PIES) was also established along the Abaco section in September 2004 by NOAA.

As a result of the efforts mentioned above, a high-resolution record of water mass property and current velocity in the DWBC has been established, 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 1980s are clearly reflected in the cooling and freshening of the DWBC waters off Abaco, as well as the arrival of a strong CFC pulse, approximately 10 years later (e.g. Fine and Molinari, 1988; van Sebille et al., 2011). These in situ efforts are unique in that the result is a sectional time series from which quantitative transports can be directly calculated. Additionally, the Abaco section is one of only a few multidecadal oceanographic times series maintained in the world's oceans today.

To achieve the goals of NOAA's strategic plan in terms of understanding the Atlantic Ocean's role in multidecadal climate variability, these continued time series measurements at Abaco serve three main purposes:

1. Monitoring of the DWBC for water mass and transport signatures related to changes in the strengths and regions of high latitude water mass formation in the North Atlantic. Monitoring water mass properties in the DWBC at key locations is one part of an effort to track decadal changes in large-scale water mass properties.

2. Serving as a western boundary endpoint of a subtropical Meridional Overturning Circulation (MOC) heat flux monitoring system. The system is 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 (NAO) have been proposed as an important mechanism in the atmosphere-ocean feedback within coupled models (e.g. Latif and Barnett, 1996).

2 Summary of Operations Completed

The research cruise departed from Fort Pierce, Florida, on November 17, 2018 at 0900 EST, aboard the R/V *Atlantic Explorer*. The hydrographic survey consisted of four repeat CTDO2/LADCP sections at historical locations in the western North Atlantic (Figure 1 and Table 2). During the transit to the first section east of Abaco Island, the ship stopped to conduct a 1000-meter test cast in the middle of the Northwest West Providence Channel (NWPC). Testing revealed a bad CTD package termination, which was repaired and tested prior to the start of the Abaco Section at 26.5°N.

The Abaco hydrographic section at 26.5°N was conducted from November 18 through November 23, 2018. There were 22 CTDO2/LADCP stations successfully occupied, with full water column casts conducted at each station (stations 1-22). The LADCP battery pack began to fail during station 4, negatively impacting the upward-facing LADCP during that cast. Following the cast, LADCP battery packs were rotated between each cast to ensure complete charging. During the section, at the request of Dr. Charlie Erikson, a University Washington deep sea glider (SG037) was successfully recovered. Also during the section, a calibration (*cal-dip*) cast was performed in support of the project's tall moorings (maintained by our UM/RSMAS partner). During the cal-dip, moored sensors (SeaBird 37SM MicroCAT CTDs), slated for deployment during the cruise, were temporarily attached to the CTDO2/LADCP package frame. This type of operation provides a direct comparison of these sensors with the SeaBird 9plus used for the hydrographic survey. As work along the section progressed eastward, the ship moved into increasingly bad weather. As a result, the ship reduced speed to continue high quality underway data collection (5-7 knots). However, by station 22, conditions had deteriorated to such an extent that no further CTDO2/LADCP stations were conducted along the section.

Following the hydrographic survey along the Abaco section, AOML and UM/RSMAS mooring operations were conducted from November 23 through November 30 (Figure 1). Despite the ship having to seek shelter from heavy weather for 24 hours, all planned mooring operations were completed. This included regular maintenance of NOAA pressure-equipped inverted echo sounders (PIES) deployed along the 26.5°N section. 15 months of daily-averaged data were telemetered from each PIES mooring. As detailed in Table 3, in some cases (at PIES sites B, C, and D), following telemetry old PIES moorings were recovered and new PIES moorings were deployed. Mooring operations also included recovering and replacing all deployed UM/RSMAS tall moorings and a bottom lander mooring (Table 4). The tall moorings contained a mixture of current meters, Acoustic Doppler Current Profilers (ADCPs) and temperature/salinity recorders and the bottom lander is equipped with a bottom pressure sensor. In total, four moorings (3 taut-wire moorings and 1 bottom lander) were deployed at the locations listed in Table 5. An acoustic survey of each site was conducted following mooring deployment.

After successfully completing all planned mooring operations, CTDO2/LADCP hydrographic sections were conducted in NWPC and in the Straits of Florida, along 26.05°N and along 27°N (see Figure 1 and Table 2) between December 1 and December 3. During these

sections all science operations went smoothly. After this work, the ship returned to Fort Pierce, Florida on December 3, 2018, at 0800 EST concluding the AB1811 research cruise. The survey was a success. All planned operations were accomplished, except for the last six, easternmost CTDO2/LADCP stations on the 26.5°N Abaco line, which were not completed due to weather. A total of 48 CTDO2/LADCP stations were occupied during the cruise.

Table 1: AB1811 cruise participants of the R/V *Atlantic Explorer*.

Name	Responsibility	Affiliation
Bill Johns	Chief Scientist	UM/RSMAS
James Hooper	CTD processing Night Watch Leader	UM/CIMAS
Andrew Stefanick	Oxygen analysis, LADCP operations	NOAA/AOML
Pedro Pena	Oxygen analysis, IES operations, Day Watch Leader	NOAA/AOML
Diego Ugaz	Salinity analysis, IES operations	NOAA/AOML
Cyril Germineaud	Salinity analysis,	UM/CIMAS
Marion Kersale	LADCP operations	UM/CIMAS
Adam Houk	Moorings	UM/RSMAS
Mark Graham	Moorings	UM/RSMAS
Greg Koman	Student	UM/RSMAS
Tiago Bilo	Student	UM/RSMAS
Manish Devana	Student	UM/RSMAS

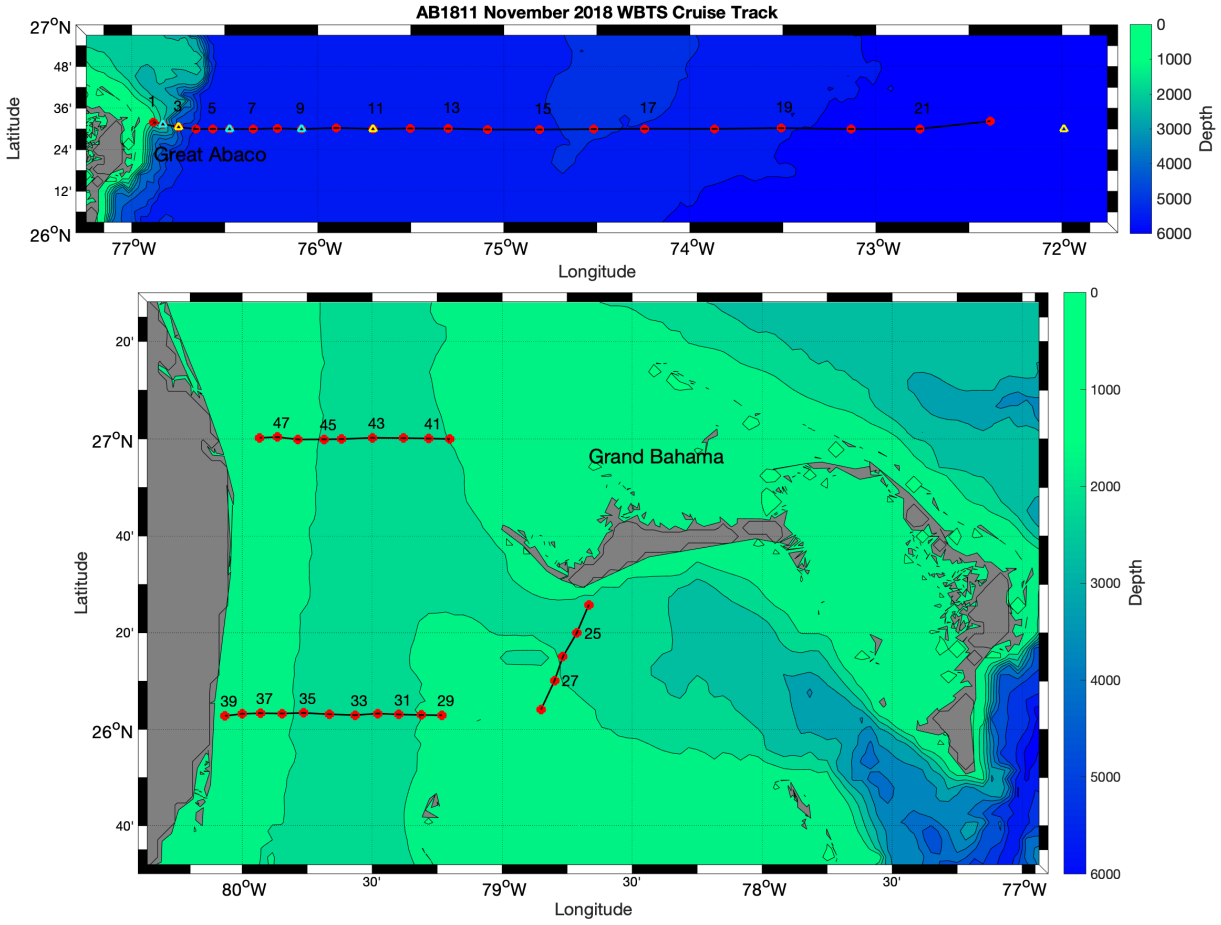

Figure 1: Completed science operations are shown above. CTD station locations completed along the Abaco, Northwest Providence Channel (NWPC), 26N and 27N sections are number sequentially, indicated with a red circle. If PIES mooring operations were also conducted at the site, the location is marked with a yellow triangle. If both PIES and UM mooring operations were conducted, the location is marked with a cyan triangle. Mooring site and station information can be found in Tables 3 - 5. Note: Station 23 was a cal-dip done at the location of station 6.

Table 2: AB1811 – CTD Cast Summary

Station	Date	Time (GMT)	Latitude	Longitude	Depth	Corrected Depth
1	11/18/18	20:26:33	26.530N	76.883W	352	378
2	11/18/18	21:48:41	26.520N	76.835W	1084	1107
3	11/18/18	23:40:42	26.500N	76.744W	3873	3883
4	11/19/18	03:58:47	26.499N	76.659W	4605	4616
5	11/19/18	10:39:42	26.500N	76.564W	4821	4834
6	11/19/18	16:26:34	26.500N	76.476W	4827	4845
7	11/19/18	22:07:19	26.500N	76.347W	4831	4852
8	11/20/18	03:34:13	26.499N	76.216W	4807	4816
9	11/20/18	09:27:17	26.500N	76.086W	4796	4804
10	11/20/18	15:02:46	26.501N	75.899W	4734	4745
11	11/20/18	20:51:44	26.500N	75.704W	4673	4693
12	11/21/18	01:52:00	26.501N	75.501W	4666	4686
13	11/21/18	07:18:55	26.501N	75.297W	4631	4638
14	11/21/18	14:15:34	26.500N	75.083W	4601	4614
15	11/21/18	19:49:57	26.500N	74.801W	4527	4546
16	11/22/18	01:09:31	26.500N	74.518W	4476	4494
17	11/22/18	06:47:48	26.500N	74.233W	4540	4545
18	11/22/18	13:17:23	26.500N	73.867W	4735	4746
19	11/22/18	19:33:12	26.502N	73.500W	4920	4929
20	11/23/18	02:29:45	26.500N	73.132W	5029	5049
21	11/23/18	10:18:39	26.502N	72.763W	5125	5135
22	11/23/18	23:24:29	26.525N	72.390W	5174	5186
23	11/30/18	02:08:45	26.501N	76.470W	4834	4845
24	12/01/18	09:54:53	26.432N	78.666W	760	770
25	12/01/18	11:48:47	26.333N	78.715W	694	697
26	12/01/18	13:19:53	26.252N	78.765W	517	523
27	12/01/18	14:41:45	26.170N	78.799W	452	460
28	12/01/18	16:20:35	26.069N	78.850W	297	307
29	12/01/18	19:30:31	26.049N	79.234W	305	323
30	12/01/18	20:51:20	26.050N	79.311W	466	488
31	12/01/18	22:22:58	26.050N	79.399W	574	591
32	12/01/18	23:58:59	26.051N	79.480W	663	676
33	12/02/18	01:46:10	26.048N	79.566W	746	766
34	12/02/18	03:50:37	26.048N	79.666W	682	703
35	12/02/18	05:44:05	26.052N	79.765W	594	605
36	12/02/18	07:28:43	26.051N	79.849W	323	334
37	12/02/18	08:49:16	26.053N	79.932W	264	275
38	12/02/18	10:06:16	26.051N	79.999W	242	252
39	12/02/18	11:12:08	26.047N	80.065W	125	134
40	12/02/18	18:21:32	27.000N	79.201W	468	485
41	12/02/18	19:48:01	27.000N	79.284W	602	614
42	12/02/18	21:23:38	27.001N	79.382W	645	663
43	12/02/18	23:12:42	27.000N	79.500W	743	762
44	12/03/18	01:18:47	26.995N	79.618W	624	646
45	12/03/18	02:52:13	26.995N	79.685W	524	537
46	12/03/18	04:33:25	26.994N	79.785W	376	387
47	12/03/18	05:55:25	27.002N	79.866W	260	269
48	12/03/18	07:06:05	27.001N	79.933W	139	149

Table 3: Inverted echo-sounder locations and operation. The corresponding station numbers are in parenthesis next to the site name (Site E CTD station canceled due to weather).

IES Site	S/N	Type	Latitude	Longitude	Date	Operation
A (2)	PIES	324	026°30.945′ N	076°50.044′ W	11/30/18	Telemetry
A2 (3)	PIES	159	026°30.084′ N	076°44.779′ W	11/29/18	Telemetry
B (6)	PIES	400	026°29.467′ N	076°28.187′ W	11/26/18	Telemetry/Recovered
B (6)	PIES	322	026°29.467′ N	076°28.187′ W	11/27/18	Deployed
C (9)	PIES	325	026°30.000′ N	076°05.600′ W	11/26/18	Telemetry/Recovered
C (9)	PIES	413	026°30.000′ N	076°05.600′ W	11/26/18	Deployed
D (11)	PIES	281	026°30.112′ N	075°42.318′ W	11/25/18	Telemetry/Recovered
D (11)	PIES	323	026°30.112′ N	075°42.318′ W	11/25/18	Deployed
E (N/A)	PIES	335	026°30.067′ N	071°00.000′ W	11/25/18	Telemetry

Table 4: Summary of mooring recovery operations. The corresponding station numbers are in parenthesis next to the site name.

Mooring Site	Mooring Number	Latitude (N)	Longitude (W)	Depth	Date of Recovery
WB0 (2)	M459	26° 30.66’	76° 50.46’	1004	11/30/2018
WB3 (6)	M460	26° 29.69’	76° 29.66’	4840	11/27/2018
WBC (9)	M462	26° 30.73’	76° 06.26’	4814	11/26/2018
WBL3 (6)	M461	26° 28.97’	76° 28.84’	4846	11/29/2018

Table 5: Summary of mooring deployment operations.

Mooring Site	Mooring Number	Latitude (N)	Longitude (W)	Depth	Date of Deployment
WB0 (2)	M477	26° 30.54’	76° 50.52’	1006	11/30/2018
WB3 (6)	M478	26° 29.72’	76° 30.07’	4840	11/29/2018
WBC (9)	M480	26° 30.70’	76° 06.44’	4819	11/27/2018
WBL3 (6)	M479	26° 29.50’	76° 29.20’	4846	11/29/2018

3 Standards and Pre-Cruise CTD Sensor Calibrations

The CTD 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 SBE11plus 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 networked Windows computer for display and data storage using Sea-Bird Seasave software (version 77.26.7.107).

The SBE911plus system transmits data from primary, secondary 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 9plus 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 reference temperature sensor is mounted to the SBE 9plus. An altimeter(s) is mounted to one of the lower internal side mounts for auxiliary sensors. A list of sensors used during the cruise can be seen in Table 6.

Table 6: Sensors used during AB1811 CTD casts.

Instrument	SN	Stations	Sensor Position	Comment
Blue Frame		1-22		
Black Frame		23-48		
Sea-Bird SBE 32 24-palce Carousel Water Sampler	32 - 1087	1-22		
Sea-Bird SBE 32 24-palce Carousel Water Sampler	3236257 - 0500	23-48		
Sea-Bird SBE9plus CTD	1335	1-48		
Paroscientific Digiquartz Pressure Sensor	135375	1-48		
Sea-Bird SBE3plus Temperature Sensor	5236	1-48	Primary	
Sea-Bird SBE3plus Temperature Sensor	5348	1-48	Secondary	
Sea-Bird SBE35 Reference Temperature Sensor	0083	1-48		
Sea-Bird SBE4C Conductivity Sensor	4346	1-48	Primary	
Sea-Bird SBE4C Conductivity Sensor	4709	1-48	Secondary	
Sea-Bird SBE43 Dissolved Oxygen Sensor	0140	1-48	Primary	
Sea-Bird SBE43 Dissolved Oxygen Sensor	2082	1-48	Secondary	
Sea-Bird SBE5T Pump	7889	1-48	Primary	
Sea-Bird SBE5T Pump	1890	1-48	Secondary	
Vale port VA 500 Altimeter	48592	1-48		Scale 15.0 Range - 100 m
RDI LADCP - 150 kHz Workhorse (UM)	18144	1-5	Downward	
RDI LADCP - 150 kHz Workhorse (AOML)	18145	6-48	Downward	
RDI LADCP - 300 kHz Workhorse (AOML)	15329	1-8	Upward	
RDI LADCP - 300 kHz Workhorse (AOML)	1856	9-48	Upward	

3.1 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 kHz $\pm$ 50 ppm/°C.

The pressure sensor utilized during AB1811 was serial number (s/n) 1335. Pre-cruise sensor calibrations were performed at Sea-Bird Electronics, Inc. in Bellevue, Washington. The calibration date and coefficients in Table 7 were entered into SEASAVE R 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 (μs). SEASAVE R automatically implements this equation.

Table 7: AB1811 Pressure Calibration Date and Coefficients.

s/n 1335
September 14, 2017
c_1 = -4.163434e+004
c_2 = -6.090208e-001
c_3 = 1.362600e-002
d_1 = 3.417500e-002
d_2 = 0.000000e+00
t_1 = 3.036781e+001
t_2 = -5.542870e-004
t_3 = 4.596360e-006
t_4 = 1.812390e-009
t_5 = 0.000000e+00
Slope = 1.00000000
Offset = -0.35000
AD590M = 1.278870e-002
AD590B = -9.314130e+000

3.2 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 SBE3plus thermometer has a typical accuracy/stability of ±0.004°C per year and resolution of 0.0003°C at 24 samples per second. The SBE3plus thermometer has a fast response time of 0.070 seconds.

Two temperature sensors (SBE 3plus) were used during AB1811, s/n 5236 and 5348. Precruise sensor calibrations were performed at Sea-Bird Electronics, Inc. in Bellevue, Washington. The calibration dates and coefficients in Table 8 were entered into SEASAVE R using the configuration file. SEASAVE R 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:

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

Table 8: AB1811 – Temperature Pre-Cruise Calibration Dates and Coefficients.

s/n 5236	s/n 5348
October 4, 2018	October 4, 2018
g = 4.39578817e-003	g = 4.36758573e-003
h = 6.78540459e-004	h = 6.36787260e-004
i = 2.80092479e-005	i = 2.15462087e-005
j = 2.12522101e-006	j = 1.88434054e-006
f_0 = 1000.0	f_0 = 1000.0

3.3 Conductivity

The flow-through conductivity-sensing element is a glass tube (cell) with three platinum electrodes (SBE4). 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 ±0.0003 $S{\cdot}m^{-1}$/month and resolution of 0.00004 $S{\cdot}m^{-1}$ at 24 scans per second.

Two conductivity sensors were used during AB1811, (s/n) 4346 and 4709. Pre-cruise sensor calibrations were performed at Sea-Bird Electronics, Inc. in Bellevue, Washington. The calibration dates and coefficients shown in Table 9 were entered into Seasave R 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:

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

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 R automatically implements this equation.

Table 9: AB1811 – Conductivity Calibration Dates and Coefficients.

s/n 4346	s/n 4709
October 4, 2018	October 3, 2018
g = -9.89546672e+000	g = -1.00453512e+001
h = 1.29508597e+000	h = 1.36673638e+000
i = -2.61785619e-003	i = -1.19998560e-005
j = 2.44030720e-004	j = 6.23353803e-005
CPcor = -9.5700e-008	CPcor = -9.5700e-008
CTcor = 3.2500e-006	CTcor = 3.2500e-006

3.4 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/crystalinity 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, s/n 0140 and 2082, were used during AB1811. The calibration dates and coefficients in Table 10 were entered into SEASAVE R using the configuration file.

Table 10: AB1811 – Oxygen Calibration Dates and Coefficients.

s/n 0140	s/n 2082
September 28, 2018	October 16, 2018
Soc = 0.41882	Soc = 0.45468
Voffset = -0.7267	Voffset = -0.5334
Tau20 = 1.31	Tau20 = 1.27
A = -5.0896e-03	A = -3.6438e-03
B = 1.7973e-04	B = 1.8644e-04
C = -2.8461e-06	C = -2.5008e-06
$E_{nominal}$ = 0.036	$E_{nominal}$ = 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:

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

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):

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

where θ is the absolute temperature (K); and

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

SEASAVE R automatically implements this equation.

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

$$D = 1 + H_1 * (e^{\left(\frac{P(i)}{H2}\right)} - 1)$$

$$C = e(-1 * \left(\frac{Time(i) - Time(i-1))}{H3}\right)$$

$$O_V(i) = O_{volt}(i) + V_{offset}$$

$$O_{newvolts}(i) = a * \frac{a}{D}$$

$$O_{finalvolts}(i) = O_{newvolts}(i) - V_{offset}$$

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.
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.

3.5 Reference Temperature

The SBE35RT is an accurate, ocean-range temperature sensor that is capable of measuring temperature in the ocean to depths of 6800 meters (22,300 ft). The SBE35RT communicates via a standard RS-232 interface at 300 baud, 8 data bits, no parity. The SBE35RT makes a temperature measurement each time a bottle fire confirmation is received, and stores the value in EEPROM. Each stored value contains the time and bottle position in addition to the temperature data, allowing comparison of the SBE35RT record with CTD and water bottle data. Using one SBE35RT eliminates the need for reversing thermometers, and provides higher accuracy temperature readings at lower cost. Calibration coefficients stored in EEPROM allow the SBE35RT to transmit data in engineering units (Table 11). When configured in a real-time system, the SBE35RT can use the system modem channel for two-way communications; it is not necessary to change cable connections to communicate with and retrieve data from the SBE35RT. Retrieved from http://www.seabird.com/sites/default/files/documents/35RT_013.pdf (2015, February 12).

The sensor measurement ranges from -5 to 35°C. The SBE35RT digital reversing thermometer has a typical accuracy/stability of ±0.001°C per year and resolution of 0.000025°C.

Table 11: AB1811 – Reference Temperature Calibration Date and Coefficients.

s/n 0083
August 21, 2014
A0 = 5.106189e-03
A1 = -1.397178e-03
A2 = 2.043958e-04
A3 = -1.128435e-05
A4 = -2.384084e-07
Slope = 1.0000
Offset = 0.0000

4 CTD Data Acquisition

Full-water-column CTD pofiles were performed with a package consisting of a 24-place, 12-liter rosette frame (AOML's blue & black frame), a 24-place water sampler pylon (SBE32) and 24, 12-liter Bullister-style Niskin bottles (for use in collecting salinity and dissolved oxygen calibration samples). This package was deployed on all casts. Underwater electronic components consisted of a SBE9plus CTD with dual pumps and the following sensors: dual temperature (SBE3plus), dual conductivity (SBE4), dual dissolved oxygen (SBE43), a reference temperature (SBE35), and dual altimeters, a Valeport VA500 and a Benthos PSA-916. The additional underwater electronic components consisted of two internally recording RDI LADCPs, a 300 kHz upward facing instrument and a 150 kHz downward facing instrument to measure water velocities. A total of 48 CTD casts were conducted during AB1811, usually to within 10 m of the bottom.

The CTD's supplied a standard Sea-Bird format data stream at a data rate of 24 frames/second. The SBE9plus CTD was connected to the SBE32 24-place pylon providing for single-conductor sea cable operations. Power to the SBE9plus CTD, SBE32 pylon, auxiliary sensors, and altimeter was provided through the sea cable from the SBE11plus deck unit in the computer lab. The CTD frame 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 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 two altimeters were mounted on the inside of the support struts 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* winch was used to deploy the CTD frame with the starboard A-frame. O-rings were changed as necessary and Niskin bottle maintenance was performed each day to insure proper closure and sealing. Valves were inspected for leaks and repaired or replaced as needed.

4.1 System Problems

As mentioned in the Summary of Operations Completed, a CTD termination issue was discovered during the survey test cast. The termination was repaired and tested prior to the start of the Abaco Section.

Later, during CTDO2/LADCP station 4, an LADCP battery pack failure impacted data on the upward-facing LADCP during that cast. Following the incident, LADCP battery packs were rotated between casts to prevent any additional LADCP data loss.

4.2 CTD Operations

Prior to each cast, the deck watch prepared the CTD rosette for sampling. All valves, vents, and lanyards were checked for proper orientation. Niskin bottles were cocked, and all hardware and connections rechecked. Fifteen minutes or so prior to station, the deck unit was powered on and an on-deck pre-cast pressure was obtained. Once on station, the syringes were removed from the CTD sensor intake ports. Tag lines were necessary for both deployments and recoveries during this cruise. As directed by the deck watch leader, the CTD was lowered to 10 m for a 2-minutes soak to remove any air bubble from the sensor lines and to make sure the sensors were behaving appropriately. The CTD was then brought back to just below the surface, with the console operator hitting Mark Scan just prior to beginning the descent. The profiling rate was no more than 30 m/min to 50 m, 45 m/min to 200 m, and no more than 60 m/min deeper than 200 m. Upon recovery, the CTD deck unit was turned off once the on-deck pressure was recorded. The CTD frame was left on deck for sampling. The bottles and rosette were examined before samples were taken and anything unusual was noted on the sample log.

A console operator monitored the progress of the deployment and quality of the CTD data through interactive graphics and operational displays of the Seasave software. Additionally, the operator created a sample log for each cast, to be used 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 CTD package from the bottom, usually allowing a safe approach to within 10 m.

On the up-cast, the winch operator stopped at each predetermined bottle trip depth following instructions from the CTD console operator. The CTD console operator then waited 30 seconds before closing a bottle and 5 seconds afterwards to allow the reference temperature sensor to sample. 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 operator then directed the winch operator to raise the package up to the next bottle trip location. After the last bottle was tripped, the console operator directed the deck watch to bring the CTD package back on deck.

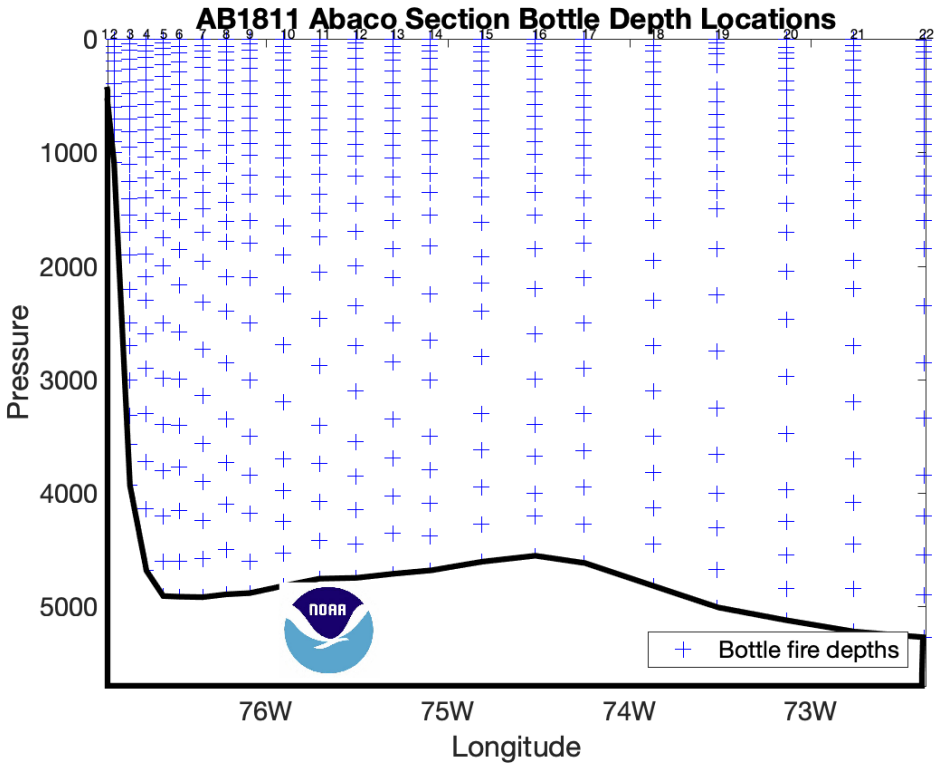

Figure 2: AB1811 Bottle locations for 26.5°N Deep Western Boundary Current section east of Abaco Island.

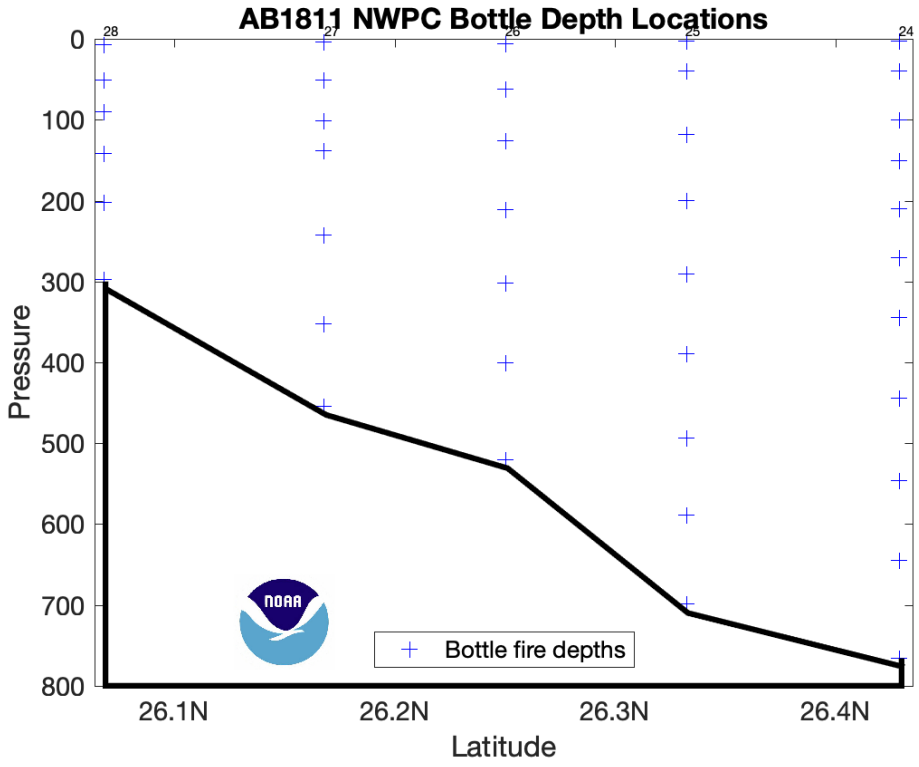

Figure 3: AB1811 Bottle locations for along the Northwest Providence Channel section.

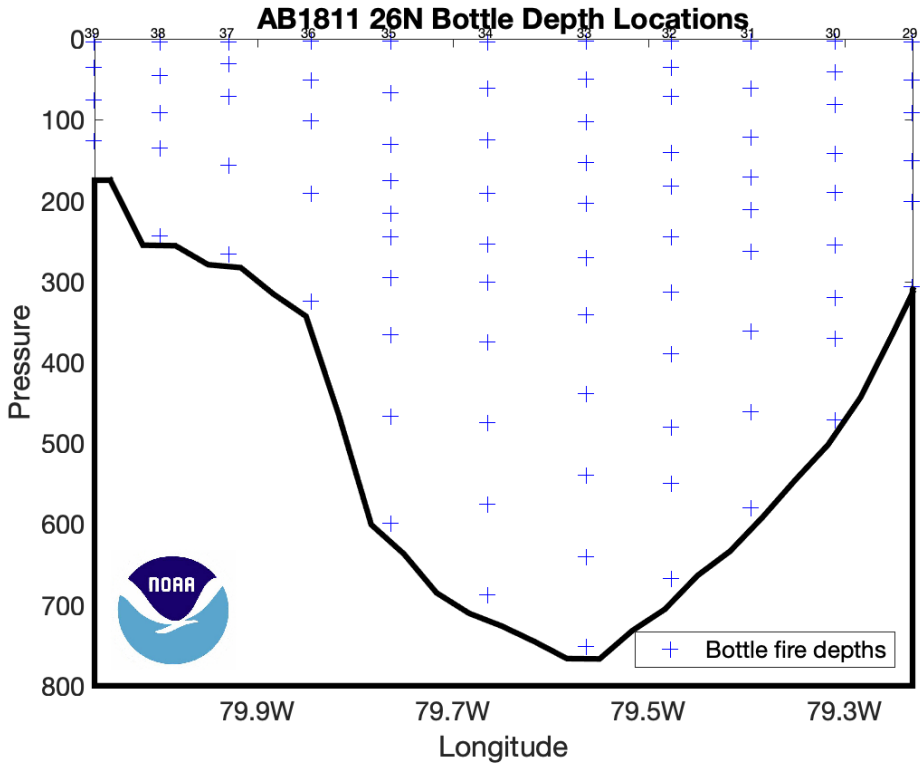

Figure 4: AB1811 Bottle locations for 26°N section in the Florida Straits.

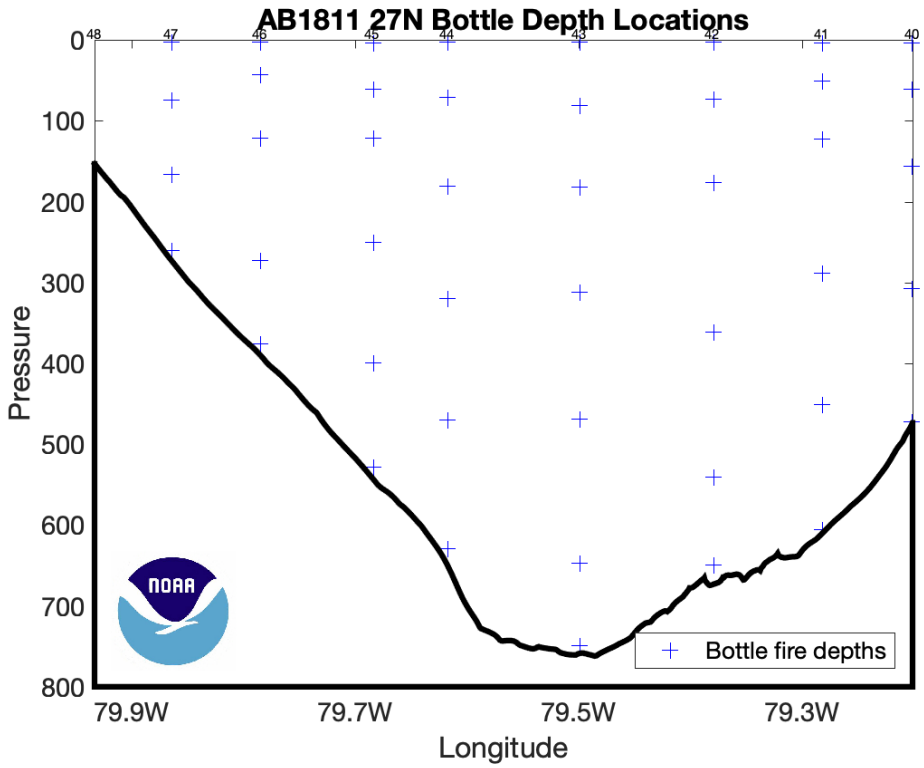

Figure 5: AB1811 Bottle locations for 27°N section in the Florida Straits.

4.3 Shipboard CTD Data Processing

Shipboard CTD data processing was performed automatically at the end of each deployment using SEABIRD SBE Data Processing version 7.26.7.114 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 R 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 R processing module sequence and specifications for primary calibrated data (1 dbar averages) uses the following routines in order for reduction of CTD/O2 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/m, c1 S/m, salinity (PSU), salinity 2 (PSU), oxygen voltage V, oxygen 2 voltage V, altimeter, oxygen μmol/kg, oxygen 2 μmol/kg, oxygen mll/l, oxygen 2 ml/l, oxygen dv/dt, oxygen dv/dt 2, latitude, and longitude. The scan range offset is 0 seconds and the scan range duration is 5.5 seconds. 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. Primary and secondary conductivity were advanced by 0.073 seconds. Both oxygen are advanced by 1.073 seconds.

3. 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 0.01 of the mean.

4. 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.

5. 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.

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. 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.

8. DERIVE uses pressure, temperature, and conductivity to compute primary and secondary salinities, potential temperatures and densities. 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. TRANS converts the binary data file into ASCII format.

11. SPLIT separates the cast into upcast and downcast values.

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 48 casts were processed.

4.4 CTD Calibration Procedures

Laboratory calibrations of the CTD pressure, temperature, conductivity, and dissolved oxygen sensors were all performed at Sea-Bird Electronics, Inc. in Bellevue, Washington. The calibration dates are listed in Table 6.

A dual sensor configuration was employed on the CTD for temperature (T), conductivity (C), and dissolved oxygen (DO2). The secondary sensor set served as a calibration check for the primary sensors. During every cast, in-situ salinity and DO2 bottle samples were collected for use in calibrating both the primary and secondary C and O2 sensors. During this particular cruise, it was determined that the secondary temperature, conductivity and dissolved oxygen sensors each behaved more stably than their primary counterparts.

4.4.1 Salinity Analysis

A single Guildline Autosal, model 8400B laboratory salinometer (s/n 71502, owned by AOML), located in a climate-controlled room aboard the vessel, was used to determine the salinity of all water samples collected. Salinometer data output was logged to a computer file using Ocean Scientific International's (OSI) logging hardware and software interface. As a standard operating practice, the Autosal's water bath temperature was maintained at 24°C. In conjunction with this, to help further stabilize the Autosal and to improve measurement accuracy, the climate-controlled laboratory temperature was maintained at 1 to 2 degrees below 24°C. This ambient condition was monitored continuously with a digital thermometer. Once drawn, salinity samples were allowed to equilibrate to room temperature in the climate-controlled laboratory for approximately 12 hours prior to analysis. The salinometer was routinely *standardized* for each group of salinity samples analyzed (usually 2 casts, up to 52 samples) using two bottles of standard seawater: one at the beginning, and one at the end of each group of samples. For each calibration standard, the salinometer cell was initially flushed 6 times before a set of conductivity ratio reading was taken. For each salinity sample, the salinometer cell was initially flushed at least 3 times before a set of conductivity ratio readings were taken. The analyst flushed the cell of the Autosal and changed samples as prompted by the OSI software. Before each analysis session (or *run*) a sub-standard flush of the Autosal, with approximately 200 ml of seawater, was performed prior to the standardization mentioned above. This assured that any deionized water that may have been stored in the cell of the Autosal between extended periods of inactivity was completely flushed from the system.

IAPSO Standard Seawater Batch P-161 was used to standardize all casts (Table 12).

Table 12: AB1811 – Nominal values for the batches of IAPSO standard seawater.

P-161
Use By: May 2020
K15: 0.99987
Salinity: 34.995

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 polypropylene screw caps fitted with *Polyseal* poly cone inserts to prevent sample evaporation. 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 dataset. 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 - AB1811, 682 salinity measurements were taken, including 65 duplicates, and approximately 32 vials of standard seawater were used. Up to two duplicate samples were drawn from most casts to determine total analytical precision.

The running standard calibration values are shown in Figure 6. Through the course of the cruise, the conductivity ratio of the Autosal standards changed by 2.0 $\times 10^{-4}$ in conductivity ratio (about 0.005 in salinity). The precision of the salinity measurements during the cruise were estimated by using the duplicate samples. From the 65 duplicate samples (Table 13), which corresponds to 9.5% of the total samples collected during this cruise, the average residual for the duplicates was 3.12 $\times 10^{-4}$ PSU with and standard deviation of 0.005 PSU (Figure 6).

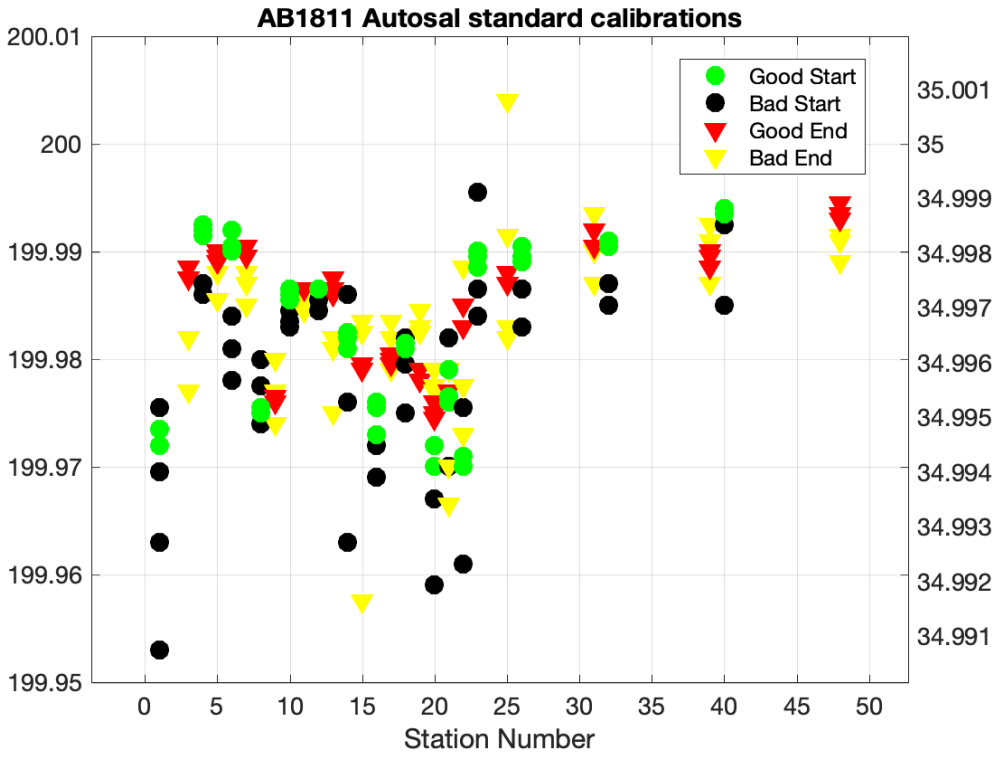

Figure 6: Standard vial calibrations throughout the cruise before and after each Autosal run. The green dots and red triangles are the good values used before and after each run to calculate salinity and drift corrections, respectively. The black dots and yellow triangles are the bad values not used.

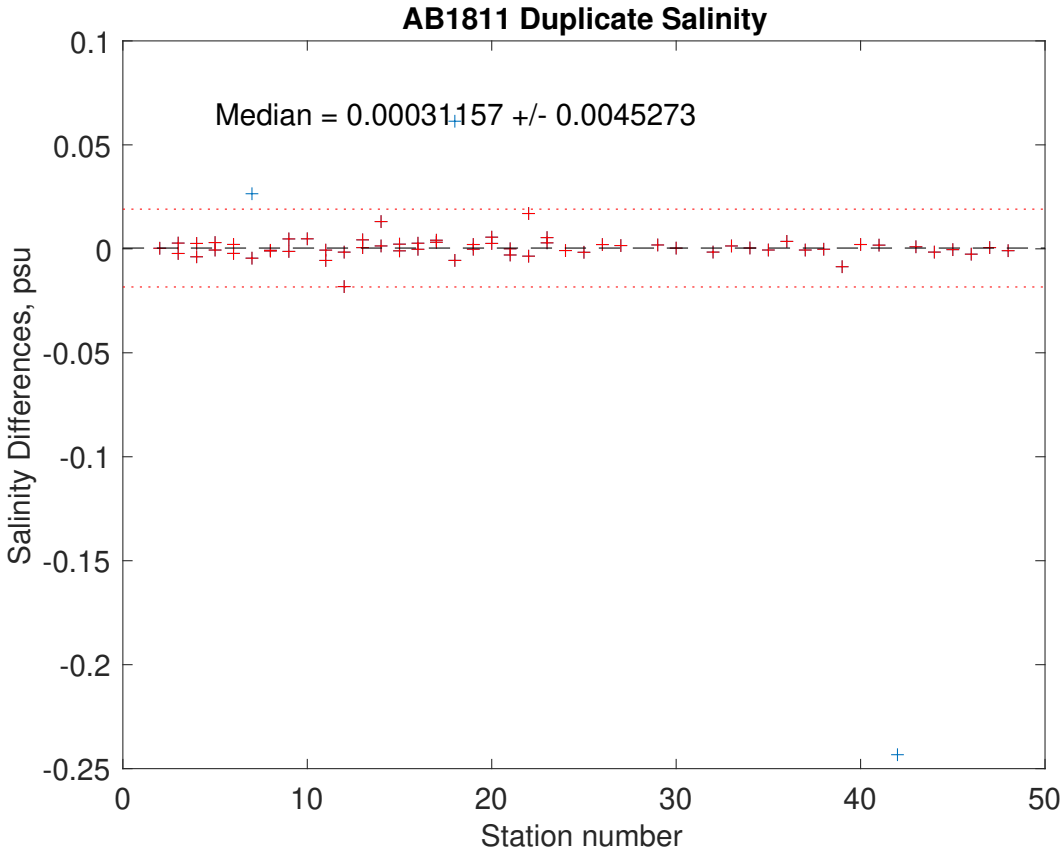

Figure 7: Salinity residuals of the duplicate samples.

Table 13: AB1811 – Duplicate salinity samples collected during the cruise.

Station	Niskin	Salinity1	Salinity2	Differences
2	8	36.548	36.548	-0.000
3	11	35.004	35.002	0.002
3	16	35.452	35.455	-0.003
4	2	34.888	34.891	-0.003
4	20	36.711	36.707	0.004
5	3	34.888	34.891	-0.003
5	19	36.637	36.636	0.001
6	3	34.892	34.890	0.002
6	10	34.991	34.993	-0.002
7	4	34.892	34.918	-0.026
7	14	35.091	35.086	0.004
8	8	34.963	34.962	0.001
8	22	36.735	36.734	0.001
9	5	34.900	34.905	-0.005
9	22	36.670	36.668	0.001
10	15	35.358	35.362	-0.005
11	5	34.901	34.900	0.001
11	19	36.632	36.626	0.006
12	3	34.887	34.885	0.002
12	20	36.784	36.765	0.018
13	9	34.972	34.976	-0.004
13	22	36.650	36.651	-0.001
14	6	34.904	34.917	-0.013
14	17	36.374	36.375	-0.001
15	1	34.862	34.865	-0.002
15	16	35.777	35.776	0.001
16	9	34.975	34.977	-0.003
16	19	36.644	36.644	0.000
17	12	35.056	35.060	-0.004
17	22	36.875	36.878	-0.003
18	4	34.895	34.956	-0.061
18	21	36.776	36.770	0.006
19	2	34.880	34.882	-0.002
19	24	36.657	36.656	0.000
20	1	34.857	34.860	-0.003
20	17	35.949	35.955	-0.006
21	9	34.985	34.985	-0.000
21	18	36.063	36.060	0.003
22	5	34.879	34.896	-0.017
22	15	35.239	35.236	0.004
23	8	34.957	34.960	-0.003
23	17	36.156	36.161	-0.005
24	10	36.573	36.572	0.001
25	4	36.438	36.436	0.002
26	4	36.757	36.759	-0.002
27	1	36.008	36.009	-0.002
29	3	36.845	36.847	-0.002
30	2	36.267	36.267	-0.000
32	2	35.264	35.262	0.002
33	1	34.907	34.908	-0.001
34	2	35.012	35.012	-0.000
35	6	36.480	36.480	0.001
36	2	36.500	36.504	-0.004
37	4	36.114	36.114	0.001
38	1	35.075	35.074	0.000
39	2	36.160	36.152	0.009
40	2	36.175	36.177	-0.002
41	1	35.538	35.540	-0.002
42	2	35.430	35.186	0.243
43	1	34.902	34.903	-0.001
44	1	34.904	34.902	0.002
45	1	34.908	34.907	0.000
46	2	35.440	35.437	0.003
47	1	35.237	35.237	-0.001
48	2	36.235	36.234	0.001

4.4.2 Oxygen Analysis

Dissolved oxygen samples were drawn from Niskin bottles into calibrated 125 iodine titration flasks using silicon tubing. Bottles were rinsed three times and filled from the bottom via the tubing, overflowing three volumes while taking care not to entrain any bubbles. 1 ml of $MnCl_2$ and 1 ml of $NaOH/NaI$ were added immediately after drawing the sample was concluded using a ThermoScientific REPIPET II. The flasks were then stoppered and well shaken. Deionized water was added to the neck of each flask to create a water seal. 655 oxygen samples were collected during AB1811, including 68 duplicate samples (up to two duplicates taken randomly during each cast). Samples were stored in the shipboard oxygen analysis lab in plastic totes at room temperature for 1.5 hours before analysis.

Dissolved oxygen analyses were performed with an automated titrator using amperometric end-point detection (Langdon, 2010). The titrator was interfaced with a computer running LabView software customized by Ulises Rivero (NOAA/AOML). The software handled the sample titration and data logging; it also provided a graphical display of the data for the analyst. Thiosulfate (17.5 g per 500 ml) was dispensed by a 2 ml Gilmont burette driven with a stepper motor controlled by the titrator. The titration methodology follows techniques outlined by Carpenter (1965) and Culberson et al. (1991). Four replicate 10 ml iodate standards were run every 3-4 days, or when new thiosulfate was added to the system, or once the thiosulfate bottle had reached half its volume, which ever came first. The reagent blank (the difference between thiosulfate volumes required to titrate two 1 ml aliquots of the iodate standard) was determined twice during the research cruise: once at the beginning of the survey and once midway through the cruise. 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 immediately prior to the cruise. Oxygen flask volumes were also determined gravimetrically with degassed deionized water at AOML prior to use.

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 #3, Burette #39, amp probe s/n: #3, Wheaton burrette (for Standards) #3, "Green" set of Oxygen sample flasks, and laptop Pufferfish, CD0004308634.

The initial two casts (001, 002) were samples using only Tygon tubing to draw the sample from the Niskin bottle. All subsequent stations the samples were drawn using the standard method of silicone tubing and a hard nylon end tube.

The precision of the oxygen measurements during the cruise were estimated by using the duplicate samples. From the 68 duplicate samples (Figure 14), which corresponds to 10.4% of the total samples collected during this cruise, the average residual for the duplicates was 0.0 μmol/kg with and standard deviation of 0.65 μmol/kg (Figure 8).

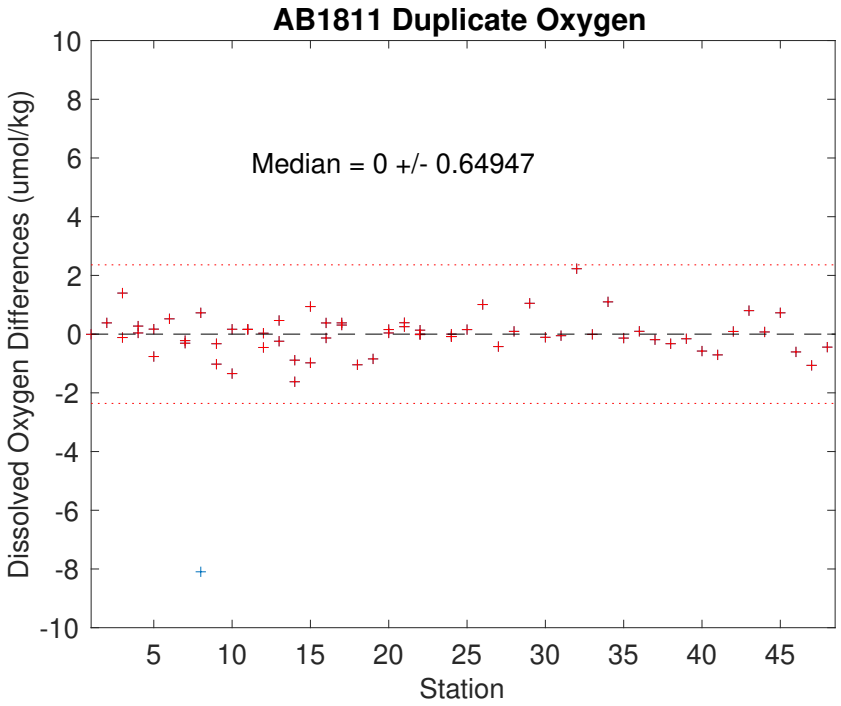

Figure 8: Oxygen residuals of the duplicate samples .

Table 14: AB1811 – Duplicate dissolved oxygen samples collected during the cruise (values in μmol/kg).

Station	Niskin	Oxygen1	Oxygen2	Differences
1	4	201.4	201.4	0.006
2	2	215.0	215.4	-0.383
3	1	269.5	270.9	-1.398
3	9	266.1	266.0	0.116
4	7	269.5	269.8	-0.274
4	15	146.3	146.4	-0.040
5	7	270.0	270.2	-0.170
5	14	162.3	161.6	0.763
6	4	179.3	179.9	-0.521
6	9	160.8	266.6	-105.750
7	1	265.1	264.9	0.221
7	24	200.4	200.1	0.309
8	3	281.4	273.3	8.096
8	9	264.6	265.3	-0.725
9	10	263.3	262.3	1.022
9	18	180.3	180.0	0.327
10	7	271.7	271.8	-0.166
10	8	269.0	267.7	1.344
11	9	268.0	268.2	-0.165
11	13	175.2	175.4	-0.158
12	1	264.8	264.4	0.455
12	13	169.8	169.8	-0.032
13	2	268.8	269.3	-0.464
13	14	152.0	151.8	0.242
14	10	261.3	259.7	1.622
14	13	163.5	162.6	0.887
15	2	267.8	268.8	-0.939
15	12	233.8	232.9	0.978
16	6	275.6	275.9	-0.381
16	17	178.8	178.7	0.132
17	3	273.4	273.8	-0.383
17	15	144.8	145.1	-0.309
18	9	268.5	267.5	1.044
18	15	141.4	168.2	-26.800
19	11	248.9	248.0	0.844
20	7	273.4	273.5	-0.156
20	19	187.7	187.7	-0.040
21	8	263.5	263.8	-0.254
21	20	186.1	186.5	-0.388
22	7	270.8	270.9	-0.135
22	9	262.7	262.7	0.000
22	14	167.2	167.2	0.016
24	2	138.4	138.4	0.000
24	3	162.6	162.5	0.082
25	3	171.9	172.0	-0.154
26	4	193.6	194.6	-1.008
27	1	153.6	153.2	0.424
28	5	198.8	198.9	-0.094
29	3	164.4	165.5	-1.050
30	3	169.4	169.3	0.108
31	4	154.3	154.3	0.053
32	1	120.5	122.7	-2.228
33	9	181.0	181.0	0.007
34	3	121.8	122.8	-1.099
35	2	121.8	121.7	0.135
36	3	170.8	170.9	-0.096
37	1	123.6	123.4	0.189
38	2	135.9	135.5	0.326
39	3	198.7	198.6	0.158
40	2	173.5	172.9	0.577
41	3	197.7	197.0	0.707
42	6	198.1	198.2	-0.091
43	2	124.1	124.9	-0.800
44	3	130.0	130.1	-0.074
45	1	138.9	139.6	-0.726
46	1	127.4	126.8	0.606
47	2	132.6	131.6	1.064
48	2	196.4	195.9	0.443

5 Post-Cruise Calibrations

In-situ salinity and dissolved oxygen samples collected during each cast were used to calibrate the conductivity and dissolved oxygen sensors. The digital reverse thermometer (reference temperature sensor), used to monitor the temperature sensors for pressure dependencies or offsets, was used to calibrate the temperature sensors. Secondary TC pair, s/n T5348/C4709, was selected for final data reduction. Secondary oxygen sensor, s/n 2082, was used for the final data reduction.

5.1 CTD Data Processing

In addition to the Seasave R processing modules, a group of Matlab script files collectively referred to as the AOML/CTDCAL Toolbox were used. These scripts are based on earlier work of different groups and 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.

- FILL_SURFACE was used to copy the first good value of salinity, temperature, oxygen and oxygen current back to the surface. The program then calculated potential temperature and conductivity, and zeroed doc/dt of oxygen current for those records.
- DESPIKE1 removed spikes from primary temperature, salinity and oxygen data. 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.
- CTD package slowdowns 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 Seasave R 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 e -05 s^{-2}.

Final calibrations are applied to delooped data files. ITS-90 temperature, PSS-78 salinity, and oxygen are computed, and WOCE quality flags are created (these flags and other CTD processing standards were established during the World Ocean Circulation Experiment in the 1990's).

5.2 CTD Pressure

The Seabird pre-cruise pressure sensor calibration coefficients 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

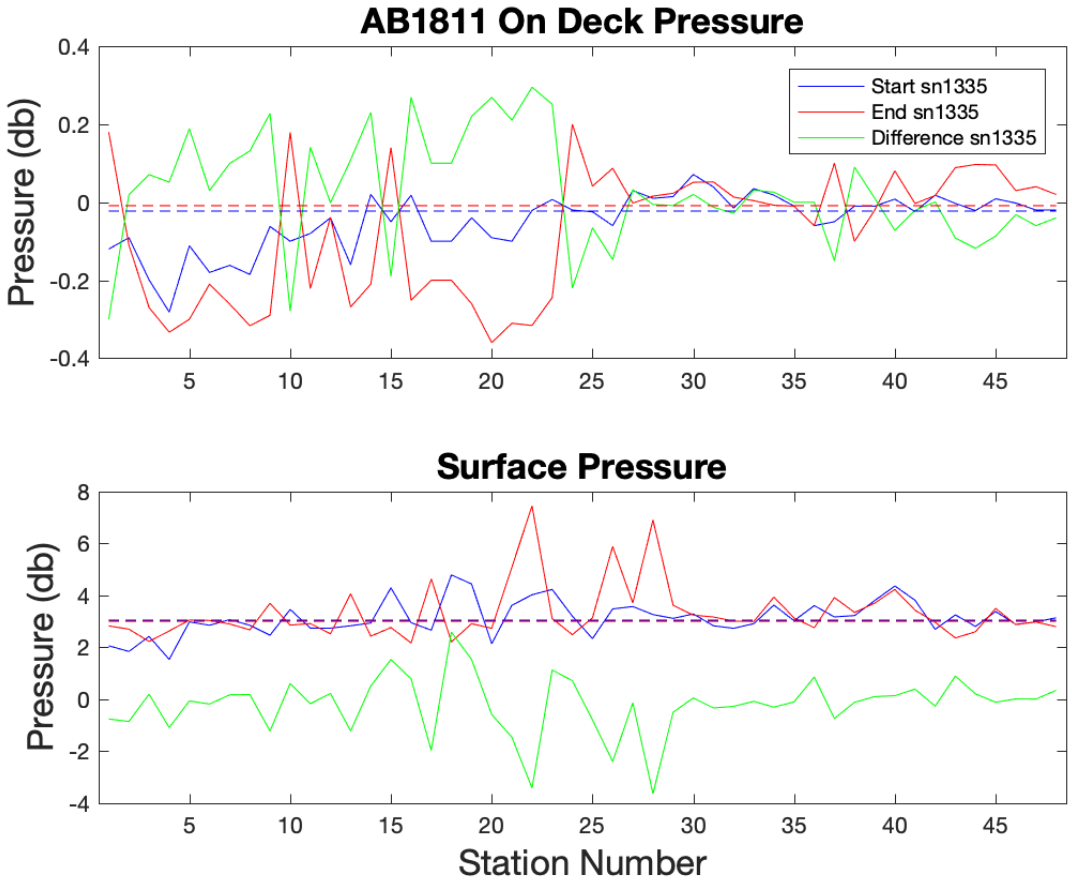

Figure 9: Top panel are the pressures measured on deck before the cast (blue), at the end of the upcast (red) and the difference (green) for s/n 1335. Bottom panel are the near sea surface pressure values measured at the start of the downcast (blue), at the end of the upcast (red) and the difference (green) for s/n 1335.

15). Pressure sensor s/n 1335 was used for all stations of the cruise with an initial pressure offset of -0.35 dbar applied to the configuration file for a total offset of -0.35. On deck pressures before the start of each cast were recorded and plotted in Figure 9. The on deck pressures before and after the cast were stable at -0.023 ± 0.07 dbar and -0.009 ± 0.16 dbar (median ± standard deviation). No further offset correction was necessary.

Near surface pressure values (which is taken as the near-surface pressure at the markscan and the last fired bottle pressure) showed no remarkable trends throughout the cruise. Pressure sensor, s/n 1335, was stable with near surface pressures prior to the downcast and following the upcast of 3.04 ± 0.67 dbar before and 2.99 ± 1.09 dbar (median ± standard deviation).

Table 15: AB1811 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	30830	-0.1200	0.1800	2.0529	2.8170
2	33305	-0.0910	-0.1100	1.8349	2.6920
3	12508	-0.1990	-0.2700	2.4107	2.2180
4	25803	-0.2816	-0.3332	1.5299	2.6240
5	43242	-0.1115	-0.3000	2.9742	3.0430
6	22062	-0.1800	-0.2100	2.8417	3.0290
7	16128	-0.1618	-0.2612	3.0586	2.8920
8	32994	-0.1850	-0.3165	2.8430	2.6660
9	18153	-0.0622	-0.2900	2.4600	3.6850
10	16641	-0.1000	0.1790	3.4497	2.8480
11	26095	-0.0800	-0.2210	2.7318	2.9080
12	25808	-0.0400	-0.0388	2.7309	2.5120
13	15351	-0.1600	-0.2685	2.8234	4.0490
14	15299	0.0200	-0.2100	2.9285	2.4220
15	26962	-0.0500	0.1400	4.2830	2.7560
16	23975	0.0180	-0.2512	2.9405	2.1620
17	20900	-0.1000	-0.2000	2.6551	4.6250
18	14110	-0.1000	-0.2000	4.7773	2.2000
19	13287	-0.0400	-0.2600	4.4306	2.9030
20	23033	-0.0910	-0.3600	2.1340	2.7250
21	51842	-0.1000	-0.3104	3.6108	5.0760
22	24080	-0.0210	-0.3160	4.0141	7.4320
23	9696	0.0070	-0.2445	4.2204	3.0990
24	25485	-0.0200	0.2000	3.1901	2.4810
25	13379	-0.0245	0.0412	2.3299	3.1300
26	15965	-0.0600	0.0871	3.4709	5.8700
27	5920	0.0300	-0.0022	3.5617	3.7050
28	14077	0.0100	0.0157	3.2536	6.8890
29	22027	0.0145	0.0230	3.1069	3.6090
30	19771	0.0712	0.0512	3.2767	3.2320
31	19345	0.0391	0.0520	2.8225	3.1610
32	17204	-0.0150	0.0132	2.7241	3.0010
33	18939	0.0349	0.0040	2.9042	2.9880
34	23372	0.0182	-0.0076	3.6176	3.9250
35	18140	-0.0100	-0.0100	3.0173	3.1220
36	18878	-0.0600	-0.0600	3.5976	2.7460
37	22922	-0.0500	0.1000	3.1630	3.9080
38	27184	-0.0100	-0.1000	3.2149	3.3350
39	22252	-0.0100	-0.0203	3.7954	3.6970
40	23602	0.0080	0.0802	4.3520	4.2180
41	22275	-0.0240	-0.0032	3.8047	3.4190
42	20537	0.0182	0.0172	2.6870	2.9570
43	20427	-0.0031	0.0887	3.2416	2.3550
44	20173	-0.0212	0.0968	2.7955	2.5930
45	26452	0.0089	0.0956	3.3705	3.4880
46	23169	-0.0021	0.0297	2.8763	2.8680
47	20117	-0.0200	0.0400	2.9710	2.9680
48	20365	-0.0200	0.0200	3.1296	2.7880

5.3 CTD Temperature

The Seabird pre-cruise temperature sensor calibration coefficients were applied to raw primary and secondary temperature data during each cast. Data accuracy, reproducibility and stability were examined by comparing the differences 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 -0.0008 °C (-0.001 °C below 1000 m) and a standard deviation of 0.006 °C (0.001 °C below 1000 m). The sensors behaved well, compared with one another with minimal offset or pressure dependence prior to any reference temperature correction.

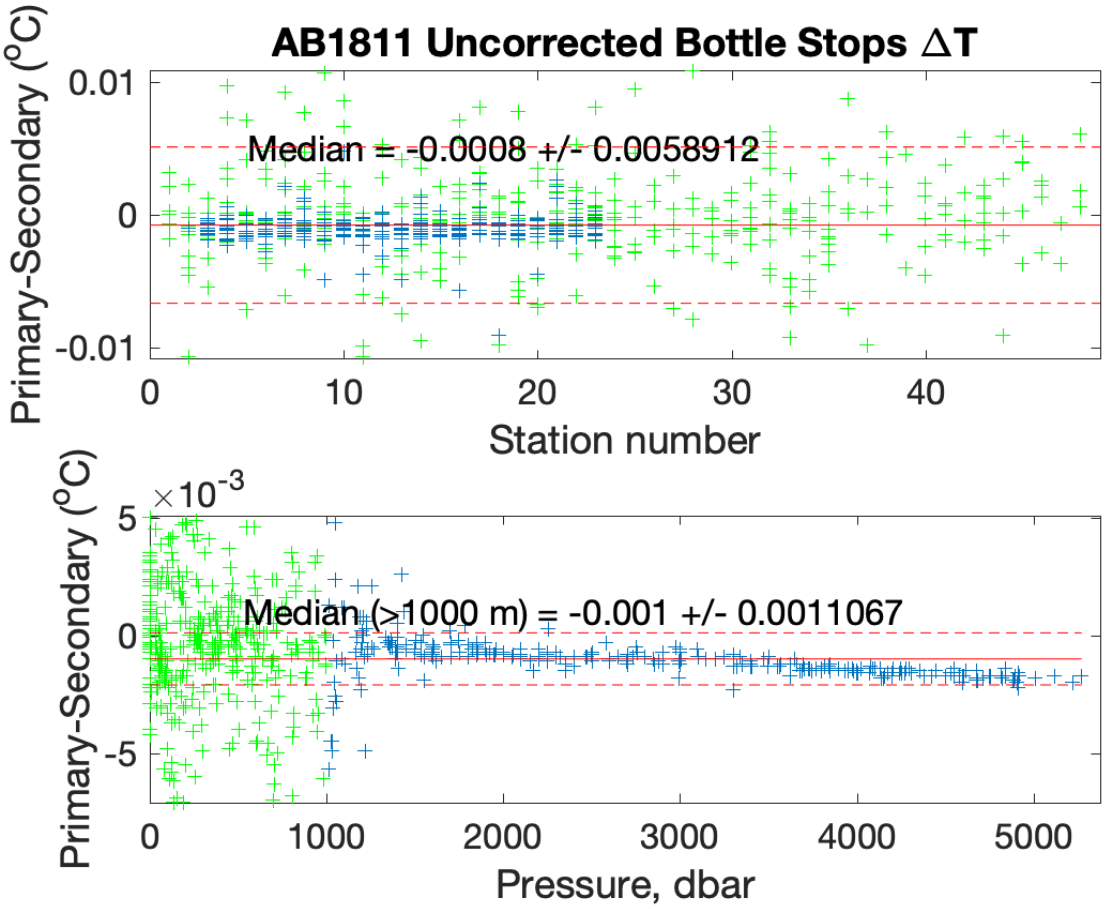

Figure 10: Temperature differences (before reference temperature corrections) between sensors by station number (top) and pressure (bottom). The green represents the surface data down to 1000 dbar. The blue represents data below 1000 dbar. The red solid line represents the median with the red dashed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

A SBE 35RT reference temperature was used during the cruise as a check to monitor the behavior of the primary and secondary temperature sensors. This allows for corrections to be made if there is any significant pressure dependence or offset seen in the sensors throughout the cruise. The bottle and instrument differences are compared to a normal distribution using 2.8 * standard deviation to find clear outliers. After these procedures 639 data points (91.8 %) were used in the final calculations. Both primary and secondary sensors differences had a strong pressure dependence of approximately 0.002 °C at 5500 dbar (Figure 11). Both temperature sensors were corrected for by using the reference temperature. The secondary temperature sensor, s/n 5348, was used for all the final data values.

In order to calibrate the CTD temperature data against the reference temperature we derived the slope correction, m, and offset correction, b, using a least squares fit. This was done as a function of CTD pressure and delta T, where delta T is the CTD temperature minus the reference temperature. The corrections for the slope and offset are then applied to the CTD pressure, P_{CTD} , to calculate the temperature correction (T_{cor}),

$$T_{cor} = [m * P_{CTD} + b]$$

and T_{cor} is applied to calculate the calibrated CTD temperature,

$$T_{new} = T_{CTD} - T_{cor}$$

where T_{CTD} is the CTD temperature and T_{new} is the calibrated CTD temperature.

Table 16: AB1811 – Temperature coefficients.

	Secondary - s/n 5348 Sta 1-48
m	5.85139229e-07
b	-0.00023678

The temperature coefficients used are shown in Table 16. From the Abaco line, stations 3-23 were used to derive the coefficients, but were applied to all stations. The corrected secondary temperature sensor is summarized in Figures 12 - 15, which shows a median temperature difference between the two sensors of -4.34 $\times 10^{-5}$ °C (3.63 $\times 10^{-5}$ °C below 1000 m) and a standard deviation of 0.001 °C (0.0004 °C below 1000 m). Also, 84.7% of the residuals for the data are within the confidence limits determined by the WOCE standard (± 0.002 psu) and this number increases to 98.9% if we consider only the data below 1000 dbar.

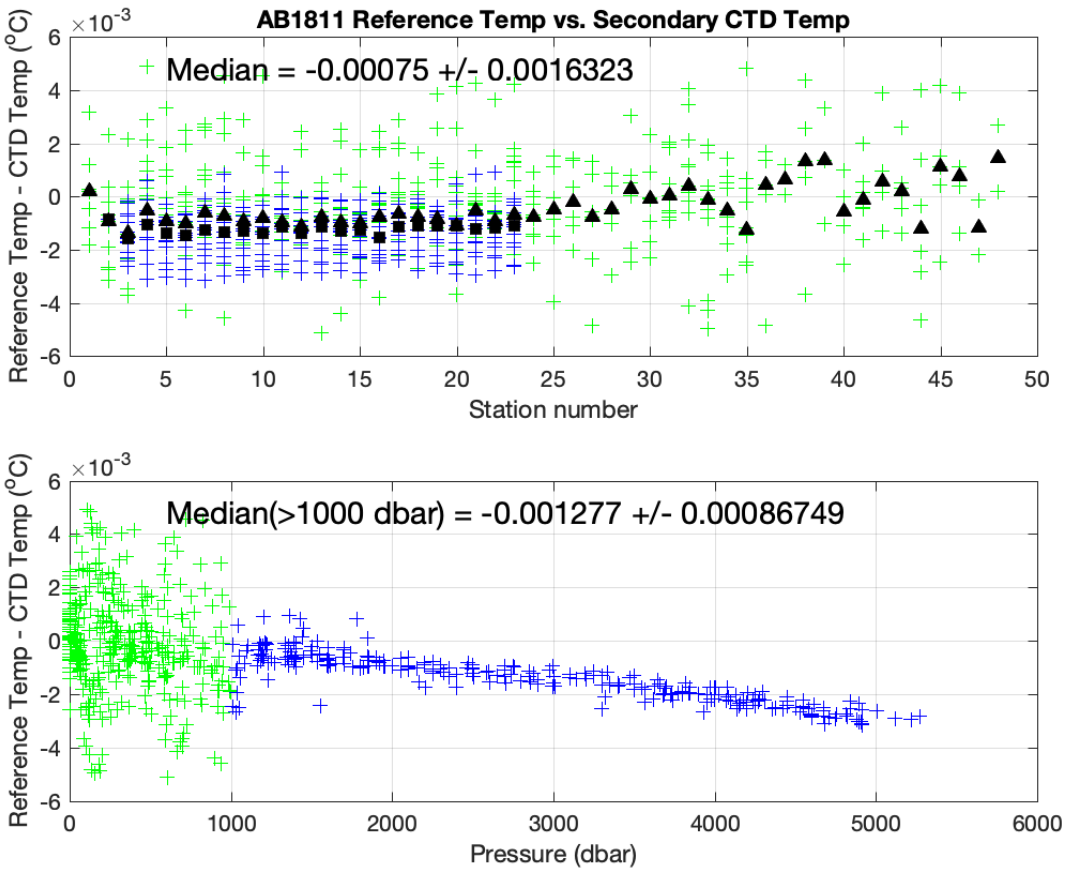

Figure 11: Reference temperature and uncalibrated secondary CTD temperature differences plotted by station number (top) and pressure (bottom). The green crosses represent data points above 1000 dbar and the blue crosses are the data points below 1000 dbar. The black squares are the median of the data points below 1000 m and the triangles are the median of the data points above 1000 dbar. The median values shown were calculated only using data below 1000 dbar.

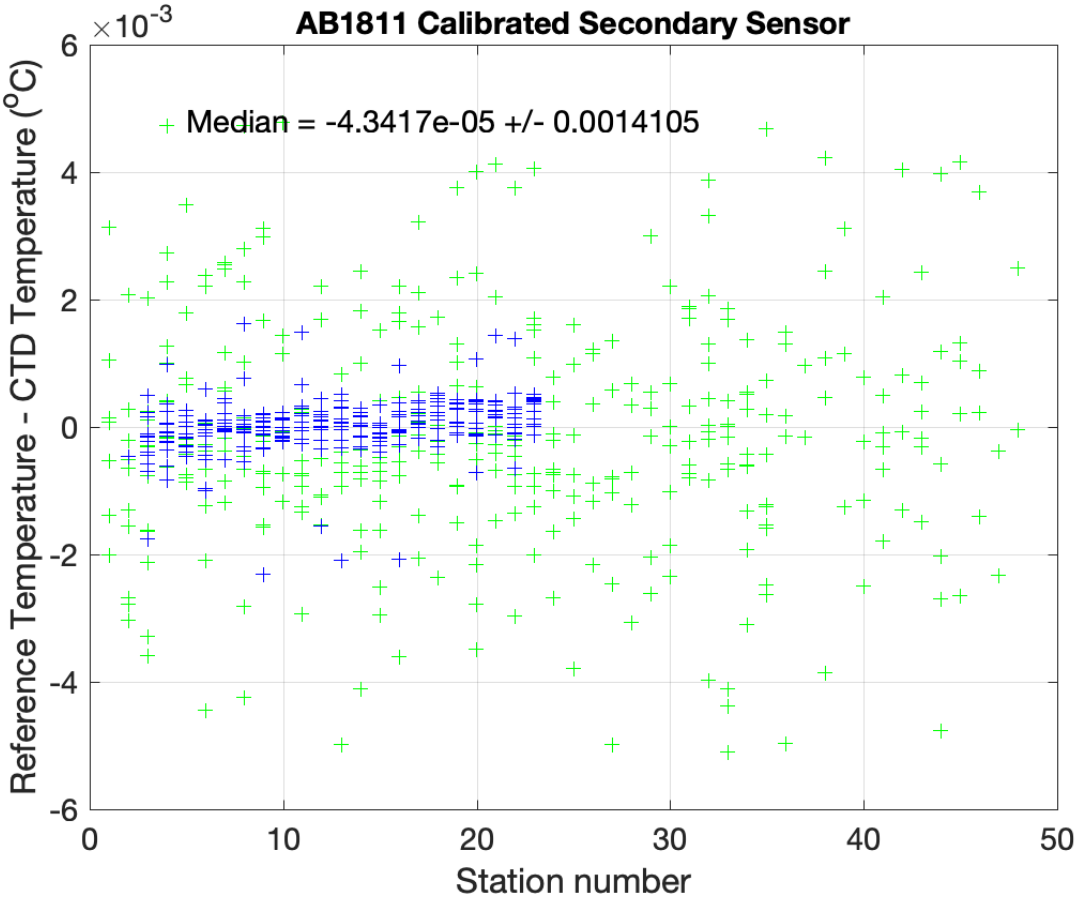

Figure 12: Reference temperature and calibrated secondary CTD temperature differences plotted vs. station. The green crosses represent data points above 1000 dbar and the blue crosses are the data points below 1000 dbar. The median values shown were calculated using all data.

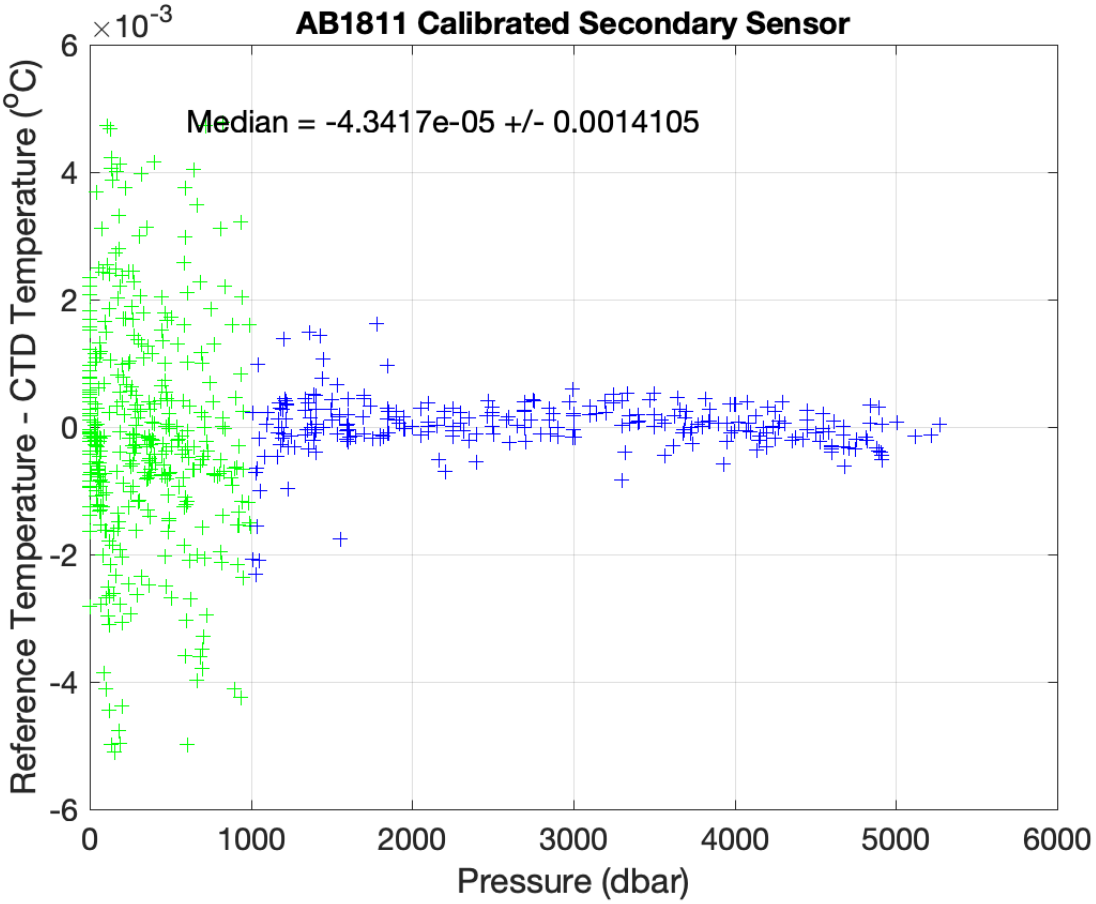

Figure 13: Reference temperature and calibrated secondary CTD temperature differences plotted vs. pressure. The green crosses represent data points above 1000 dbar and the blue crosses are the data points below 1000 dbar. The median values shown were calculated using all data.

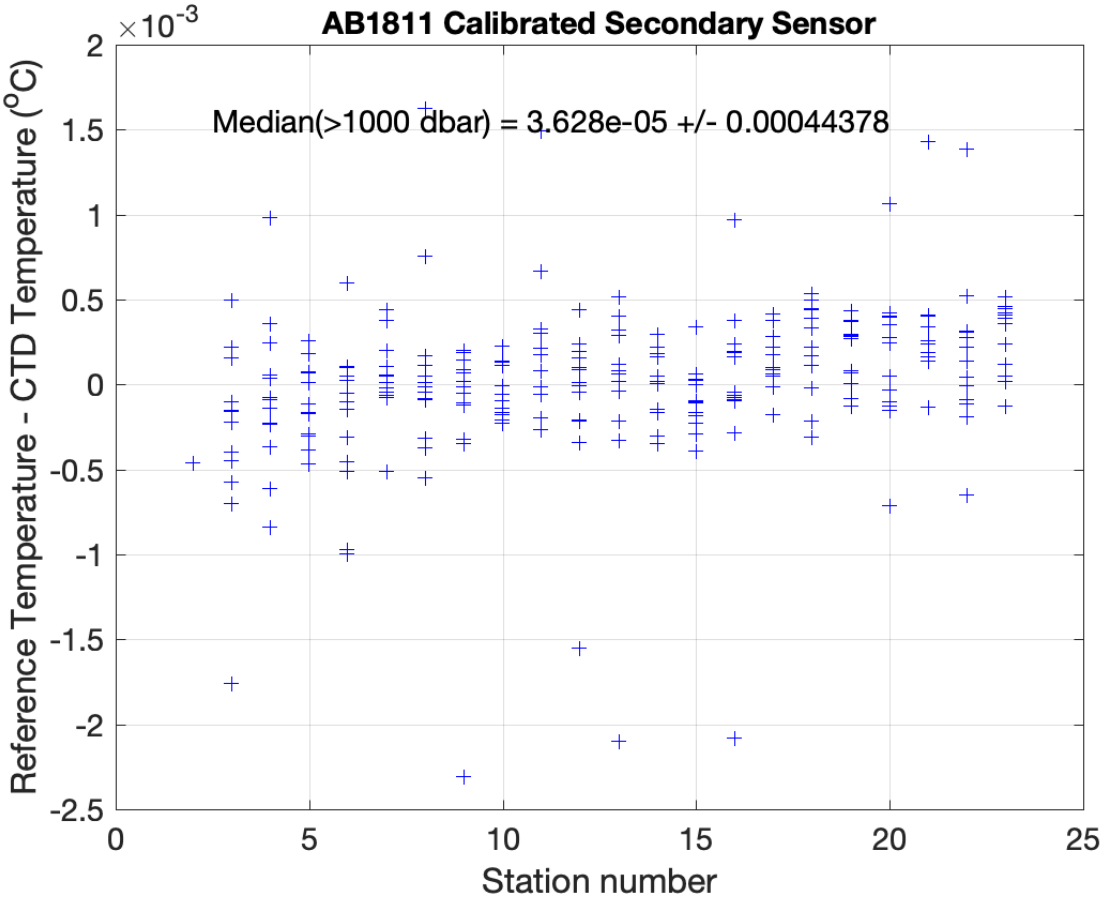

Figure 14: Reference temperature and calibrated secondary CTD temperature differences (blue crosses) plotted vs. station below 1000 dbar. The median values shown were calculated only using data below 1000 dbar.

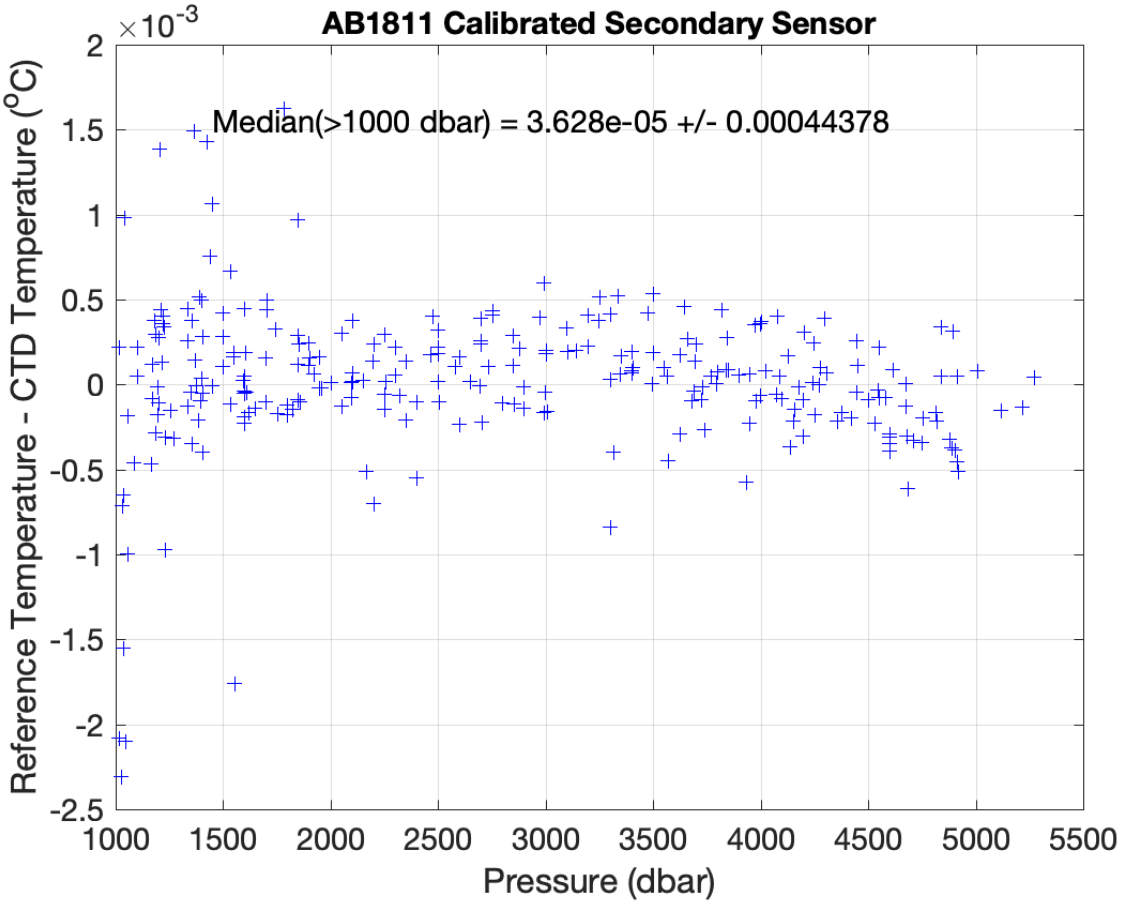

Figure 15: Reference temperature and calibrated secondary CTD temperature differences (blue crosses) plotted vs. pressure below 1000 dbar. The median values shown were calculated only using data below 1000 dbar.

5.4 Conductivity

The Seabird pre-cruise conductivity sensor calibration coefficients were applied to raw primary and secondary conductivity data during each cast. 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 differences between the primary and secondary conductivity sensors (C1-C2) are shown in Figure 16 to help identify sensor drift. The sensors show a median difference of -2.5 $\times 10^{-4}$ mS/cm (2.5 $\times 10^{-4}$mS/cm for the data below 1000 dbar) with a standard deviation of 0.006 mS/cm (0.001 mS/cm for the data below 1000 dbar). The uncalibrated secondary sensor comparison with the bottle salinities showed both sensor residuals behaving similarly. The secondary was chosen with a median of 1.17 $\times 10^{-3}$ psu and a standard deviation of 0.003 psu (Figure 17). Therefore the secondary sensor, s/n 4709, was used for all the final data values. The bottle and instrument differences are compared to a normal distribution using 2.8 $\times$ standard deviation to find clear outliers. After these procedures, 561 data points (82.26 %) were used in the final calculations.

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 which are then applied to

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

with

Table 17: AB1811 – Conductivity coefficients.

Secondary - s/n 4709	
Stations 1-48	
m	0.9999791
p_1	2.1710636e-05
b	0.0017068
$pcor$	-2.5065615e-07

where C_{CTD} is pre-cruise calibrated CTD conductivity (mS/cm), m is the conductivity slope, b is the offset (mS/cm), 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 stations used are chosen by looking at residual trends between the sensor and bottle data. From the Abaco line, stations 3-23 were used to derive the coefficients, but were applied to all stations.

The coefficients estimated by the equation above were then applied to the CTD conductivities and the final results (Figure 18 to Figure 21) show a residual of 3.35 $\times 10^{-4}$ psu (1.62

$\times 10^{-4}$ psu for the data below 1000 dbar) and a standard deviation of 0.003 psu (0.001 psu for the data below 1000 dbar). Additionally, 65.78% of the residuals for the data are within the confidence limits determined by the WOCE standard ($\pm$ 0.002 psu), and this number increases to 89.16% if we consider only the data below 1000 dbar.

Temperature and salinity data collected during AB1811 were also compared with historical project data (Figure 22 and Figure 23). Water mass properties are very stable for deeper layers of the ocean. By comparison, one can asses the relative characteristics of the AB1811 data set, and more easily identify irregularities or inconsistencies in the θ - S diagrams.

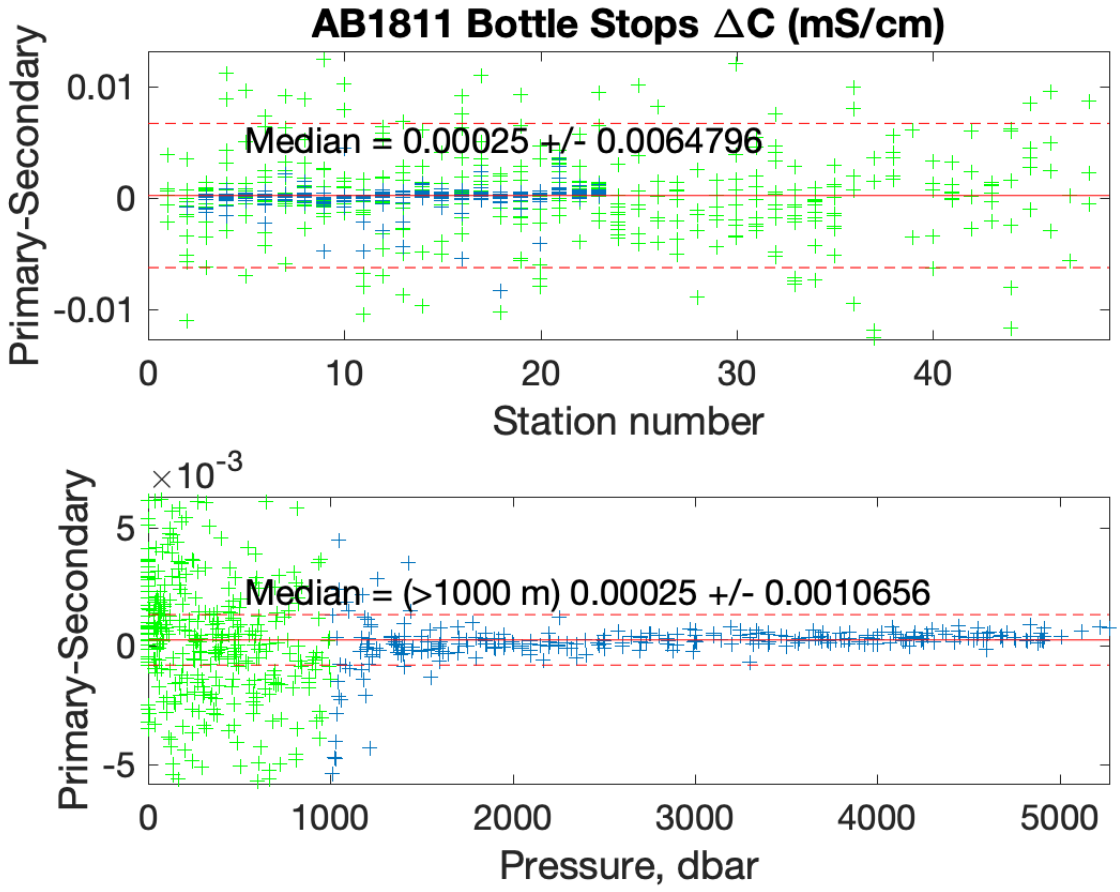

Figure 16: Conductivity upcast bottle stop (mS/cm) differences between sensors by station (top) and pressure (bottom). The green crosses represent data points above 1000 dbar and the blue crosses are the data points below 1000 dbar. The red solid line represents the median with the red dashed representing the standard deviation.

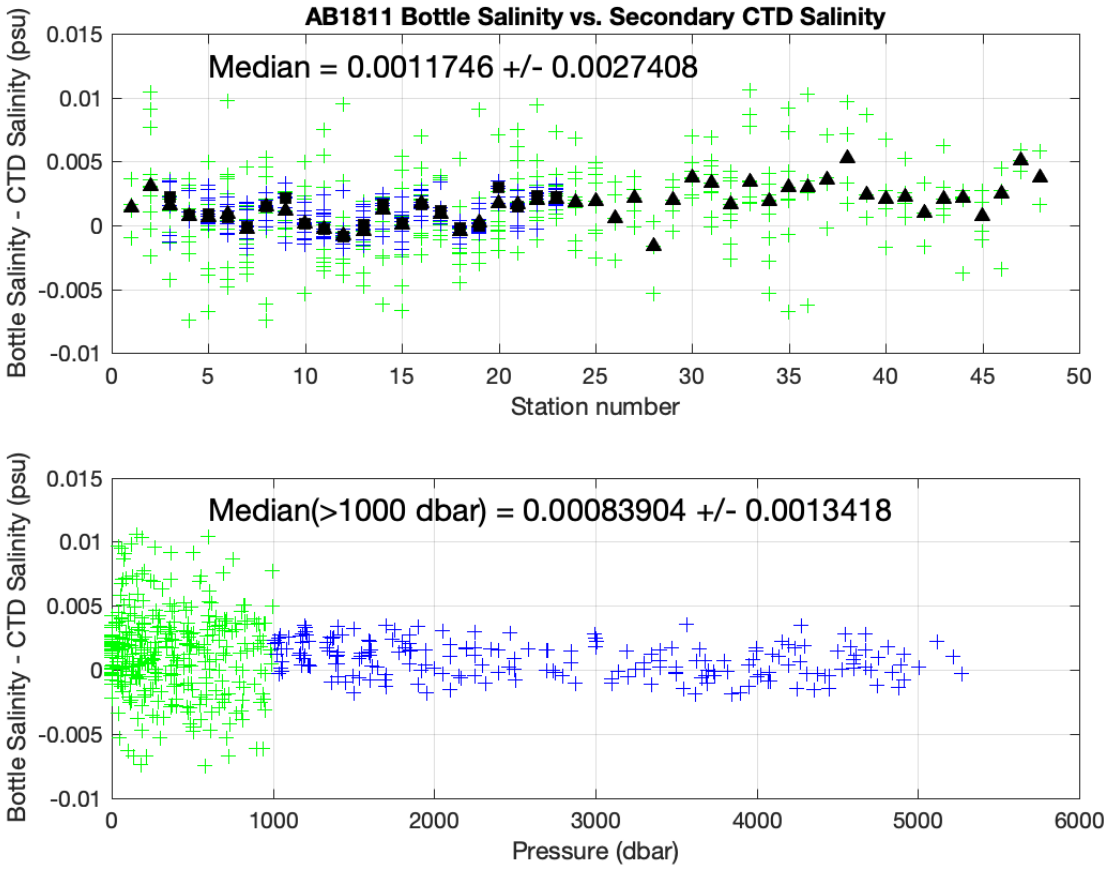

Figure 17: Bottle and uncalibrated secondary CTD salinity differences plotted by station (top) and pressure (bottom). The green crosses represent data points above 1000 dbar and the blue crosses are the data points below 1000 dbar. The black squares are the median of the data points below 1000 m and the triangles are the median of the data points above 1000 dbar. The median values shown were calculated only using data below 1000 dbar.

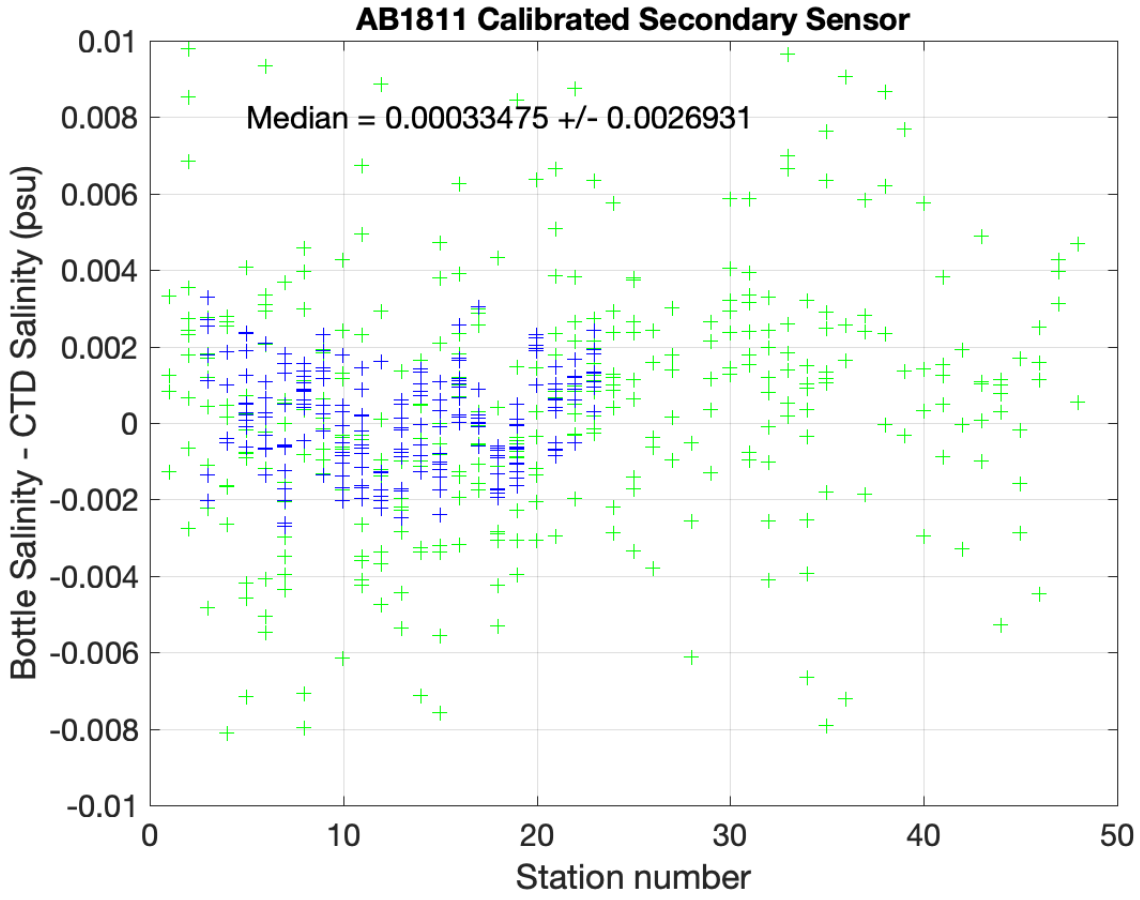

Figure 18: Bottle and calibrated secondary CTD salinity differences plotted vs. station. The green crosses represent data points above 1000 dbar and the blue crosses are the data points below 1000 dbar. The median values shown were calculated using all data.

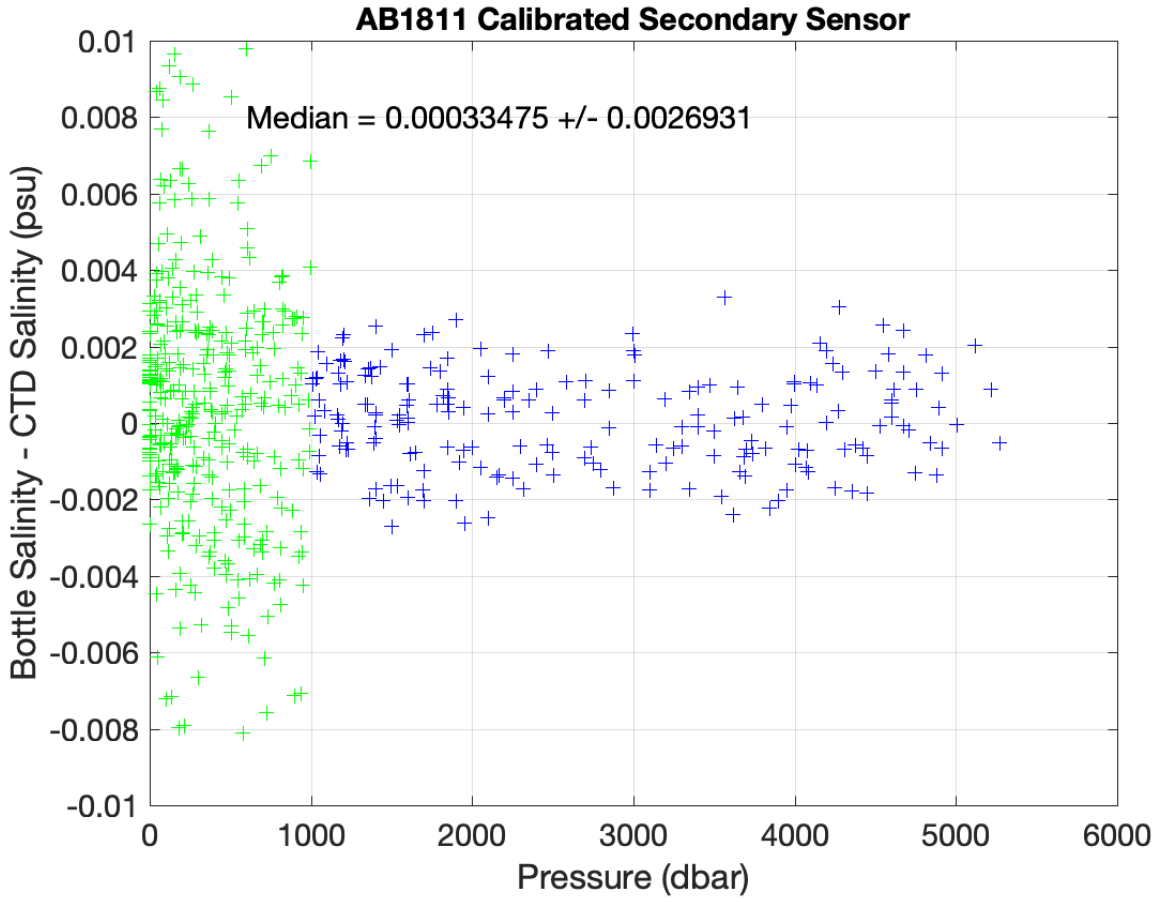

Figure 19: Bottle and calibrated secondary CTD salinity differences plotted vs. pressure. The green crosses represent data points above 1000 dbar and the blue crosses are the data points below 1000 dbar. The median values shown were calculated using all data.

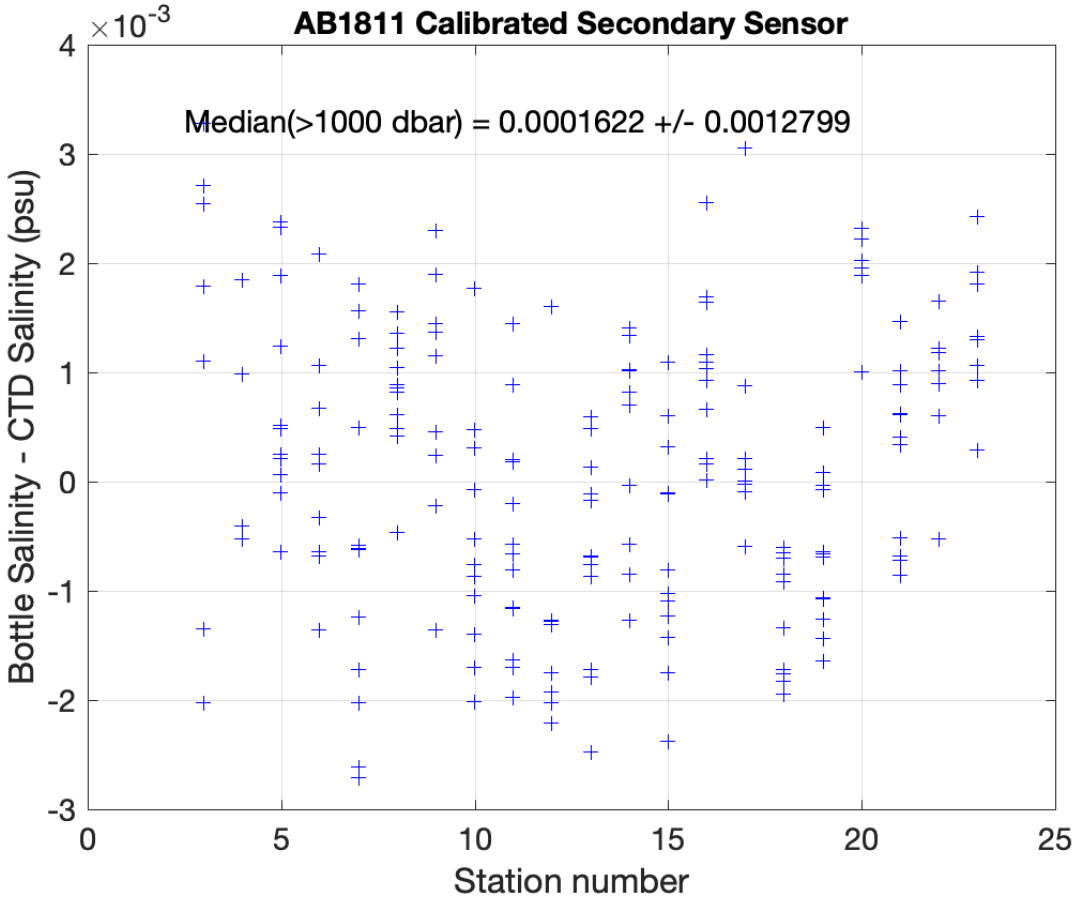

Figure 20: Bottle and calibrated secondary CTD salinity differences (blue crosses) plotted vs. station below 1000 dbar. The median values shown were calculated only using data below 1000 dbar.

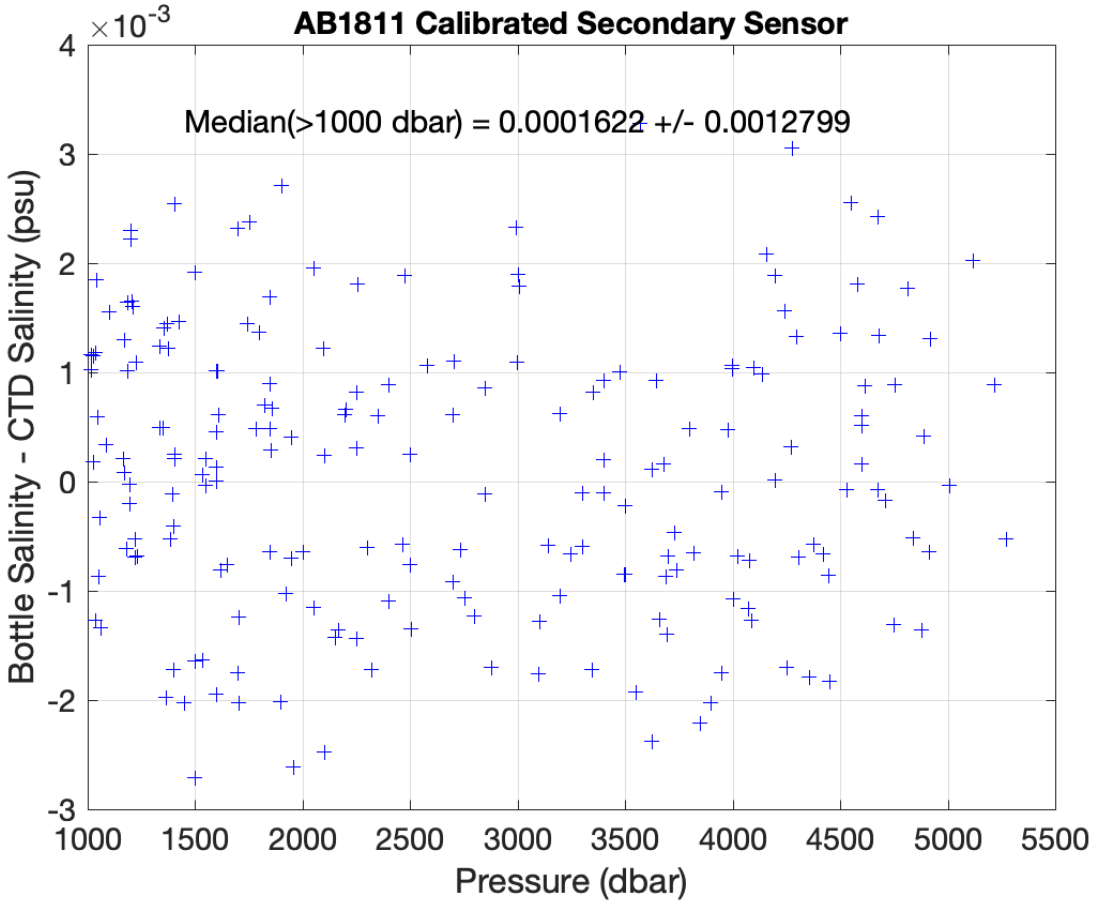

Figure 21: Bottle and calibrated secondary CTD salinity differences (blue crosses) plotted vs. pressure below 1000 dbar. The median values shown were calculated only using data below 1000 dbar.

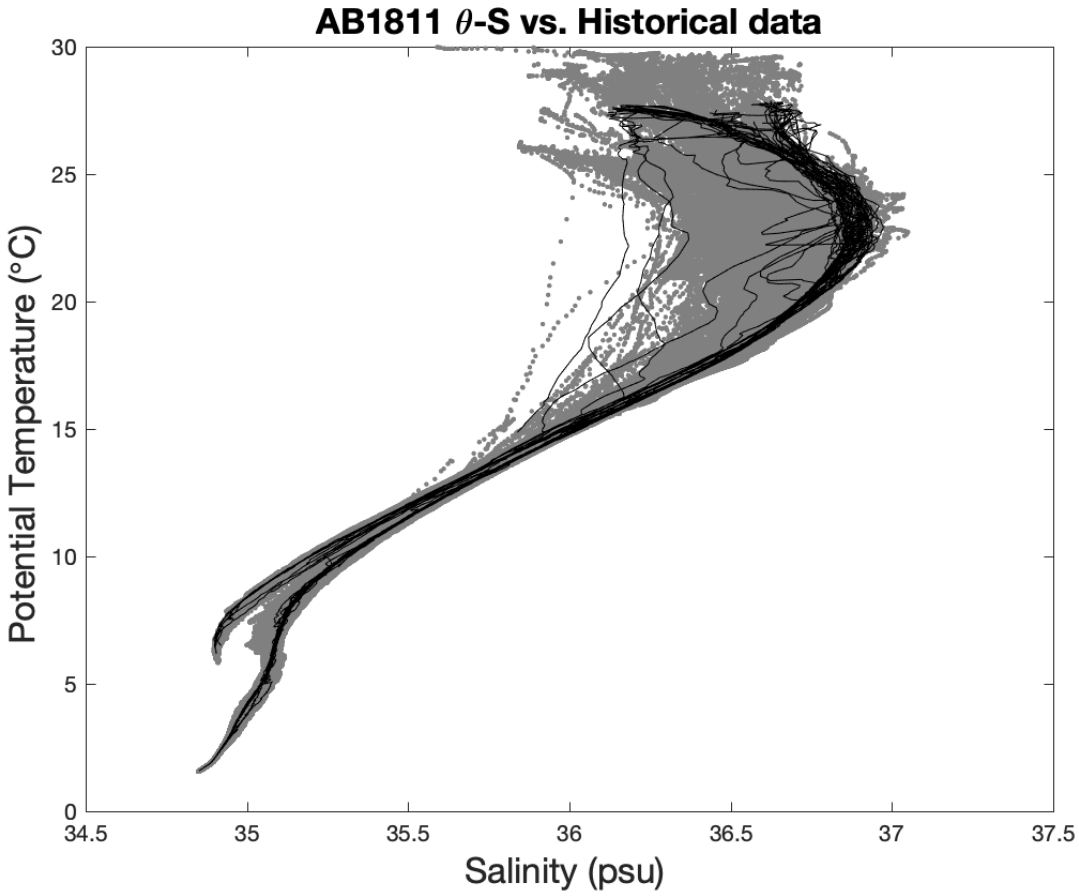

Figure 22: Potential Temperature (θ) - Salinity diagram for all stations. The solid black lines represent AB1811 data. Solid gray lines are historical data collected during the project.

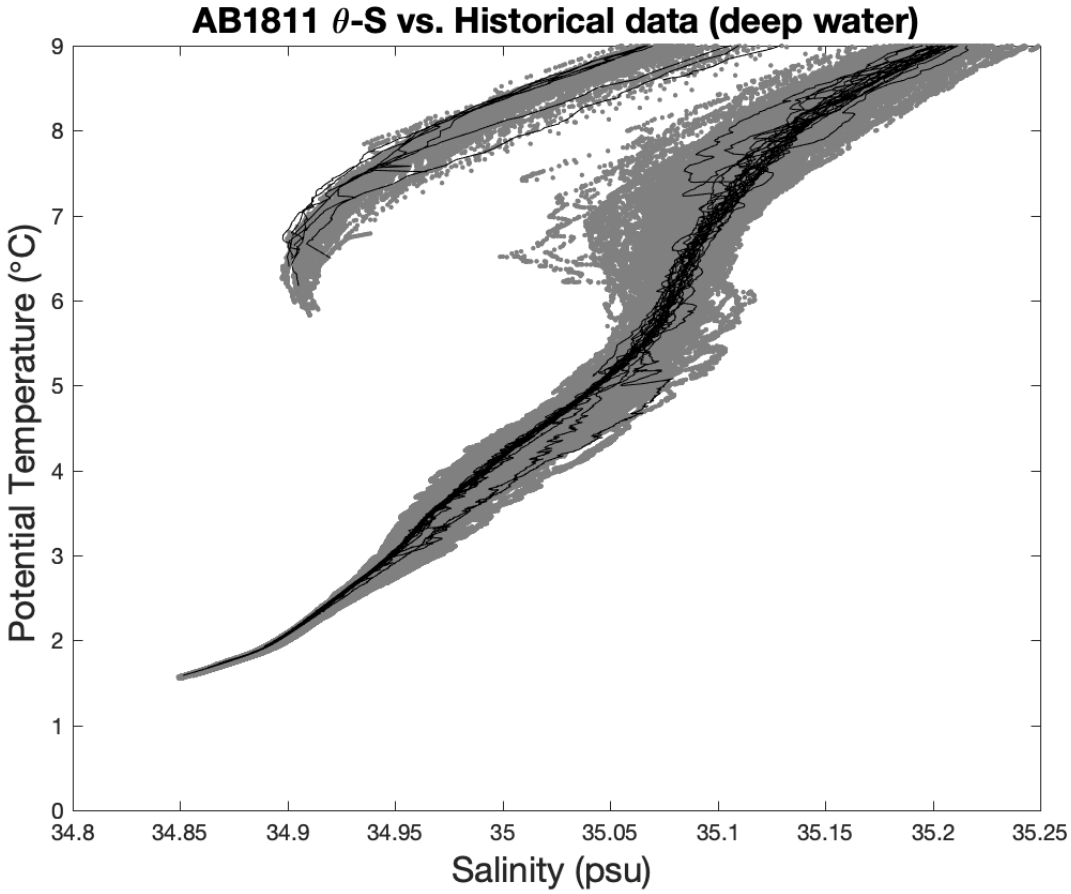

Figure 23: Potential Temperature (θ) - Salinity diagram for all stations (deep water). The solid black lines represent AB1811 data. Solid gray lines are historical data collected during the project.

5.5 Dissolved Oxygen

Oxygen sensor calibration coefficients derived from the pre-cruise calibrations were applied to raw primary and secondary oxygens. The sensors were calibrated to dissolved oxygen bottle samples by matching up cast bottle trips to down cast CTD data along neutral density surfaces, calculating CTD dissolved O_2, 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 non-linear least squares regression using the Gauss-Newton algorithm with Levenberg-Marquardt modifications for global convergence is used to fit profiles to the bottle data. This algorithm is independent of the first coefficients estimation and demonstrates improved convergence. Additionally, the routine includes an optional time drift term (related with the station number), allowing all stations to be calibrated without breaking them into discrete groupings. The Owens and Millard (1985) algorithm was modified as follows:

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

with

Table 18: AB1811 – Oxygen coefficients.

Secondary - s/n 2082 Stations 1-48	
Soc	0.4622053
V_offset	-0.5234183
tau	1.95
A	-0.0062415
B	0.0004324
C	-0.0000076
E	0.0384011
$p1$	0.0001422

where Soc, tau, V_{offset}, 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 24) was evaluated. The sensors show a median difference of 0.20 μmol/kg and a standard deviation of 2.51 μmol/kg. The the secondary sensor, s/n 2082, was used for all the final data values (Figure 25).

The oxygen coefficients used to correct the secondary oxygen are shown in Table 18. For the Abaco line, stations 3-23 were used to derive the coefficients and were applied to stations all stations. Also, analogous to the conductivity, the data is compared with a normal distribution using 2.8 * standard deviation to remove outliers. After these procedures 565 data points (86.3%) were used in the final calculations.

To minimize the differences between the oxygen samples and the CTD oxygen values estimated from the equation described in this section, the new coefficients above were calculated and then applied to the CTD original data (Figure 26 to Figure 29). The residual is -0.20 μmol/kg (0.11 μmol/kg for the data below 1000 dbar) and the standard deviation 1.1 μmol/kg (0.93 μmol/kg for the data below 1000 dbar). Also 99.1% of the residuals for the data are within the confidence limits determined by the WOCE ($\pm$ 1% of the dissolved oxygen measured) and this number increase to 100% if we consider only the data below 1000 dbar.

As with the salinity data, the final dissolved oxygen data were compared with historical oxygen data from the project to asses the relative characteristics of the collected data set and to identify any anomalous signatures in the θ - dissolved O_2 diagrams (Figure 30 & Figure 31).

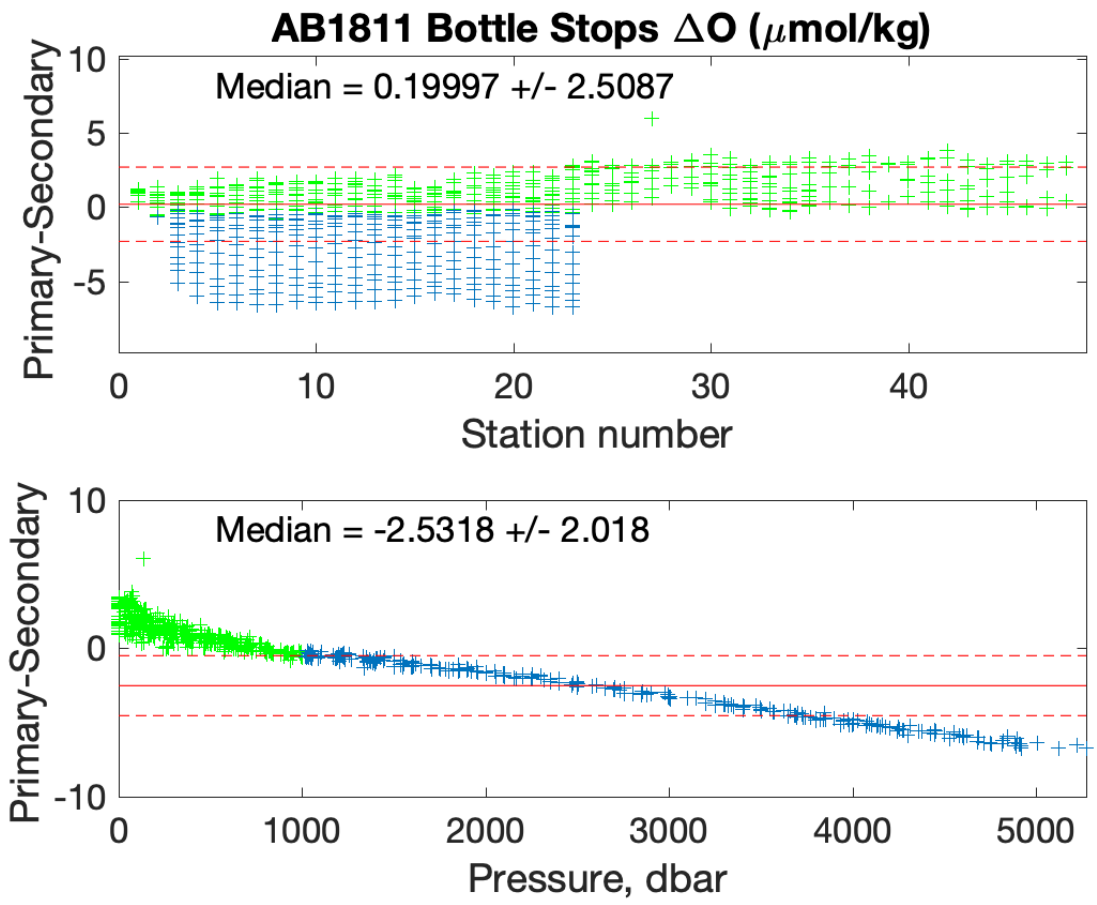

Figure 24: Dissolved oxygen upcast bottle stop differences between sensors by station (top) and by pressure (bottom). The green crosses represent data points above 1000 dbar and the blue crosses are the data points below 1000 dbar. The red solid line represents the median with the red dashed representing the standard deviation.

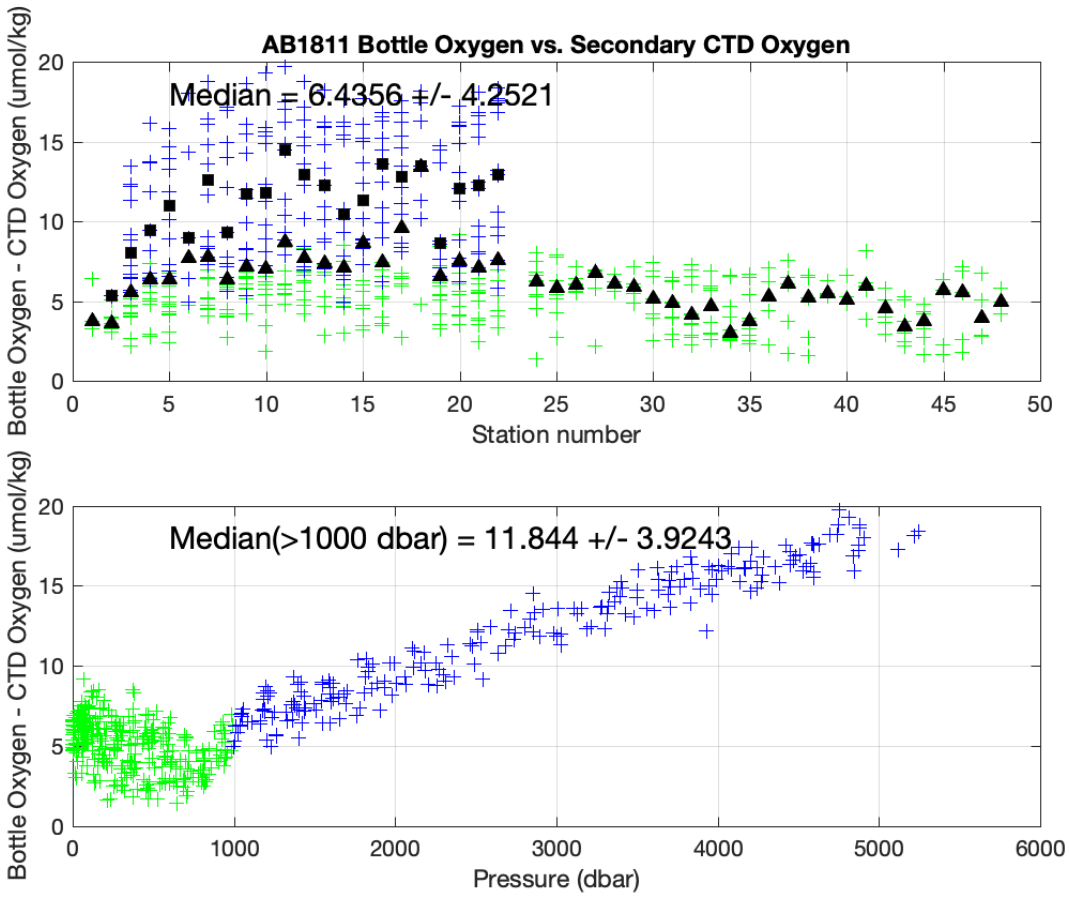

Figure 25: Bottle and uncalibrated secondary CTD oxygen differences plotted by station (top) and by pressure (bottom). The green crosses represent all data points and the blue crosses are the data points below 1000 dbar. The black squares are the median of the data points below 1000 m and the triangles are the median of the data points above 1000 dbar. The median values shown were calculated only using data below 1000 dbar.

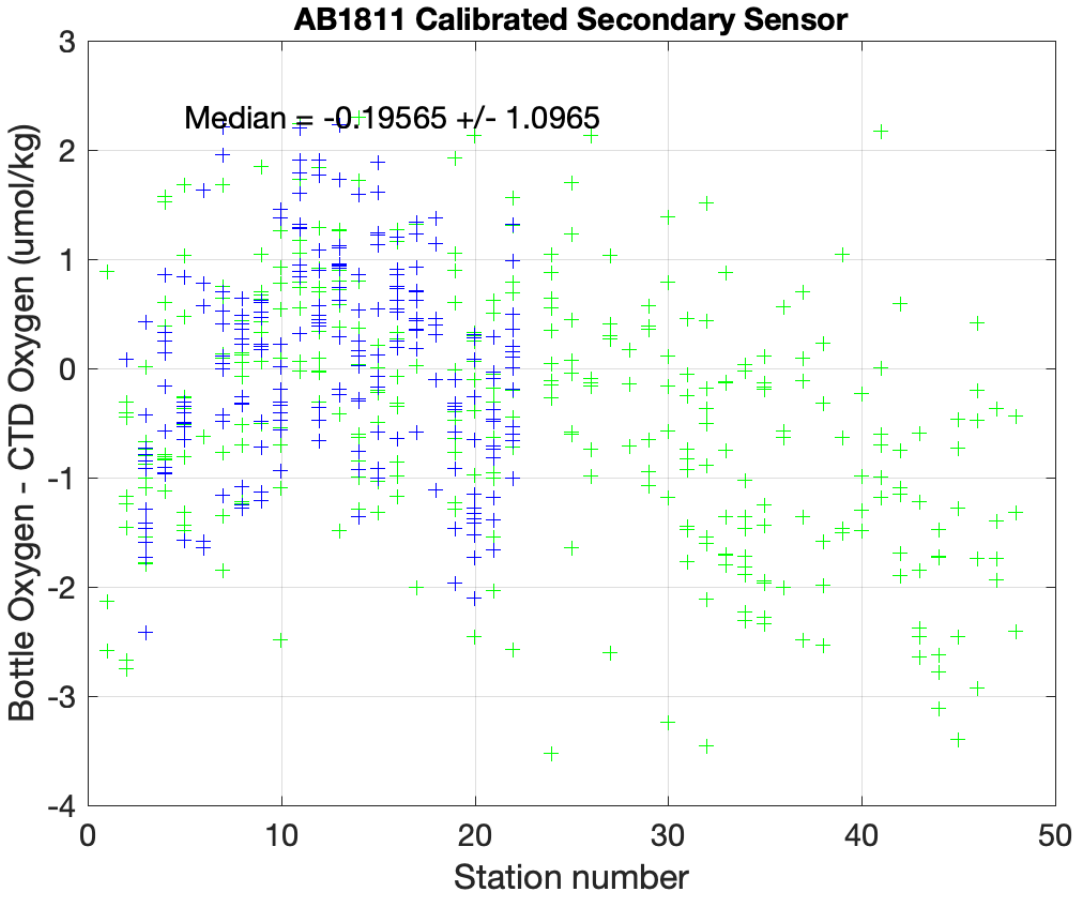

Figure 26: Bottle and calibrated secondary CTD oxygen differences plotted vs. station. The green crosses represent data points above 1000 dbar and the blue crosses are the data points below 1000 dbar. The median values shown were calculated using all data.

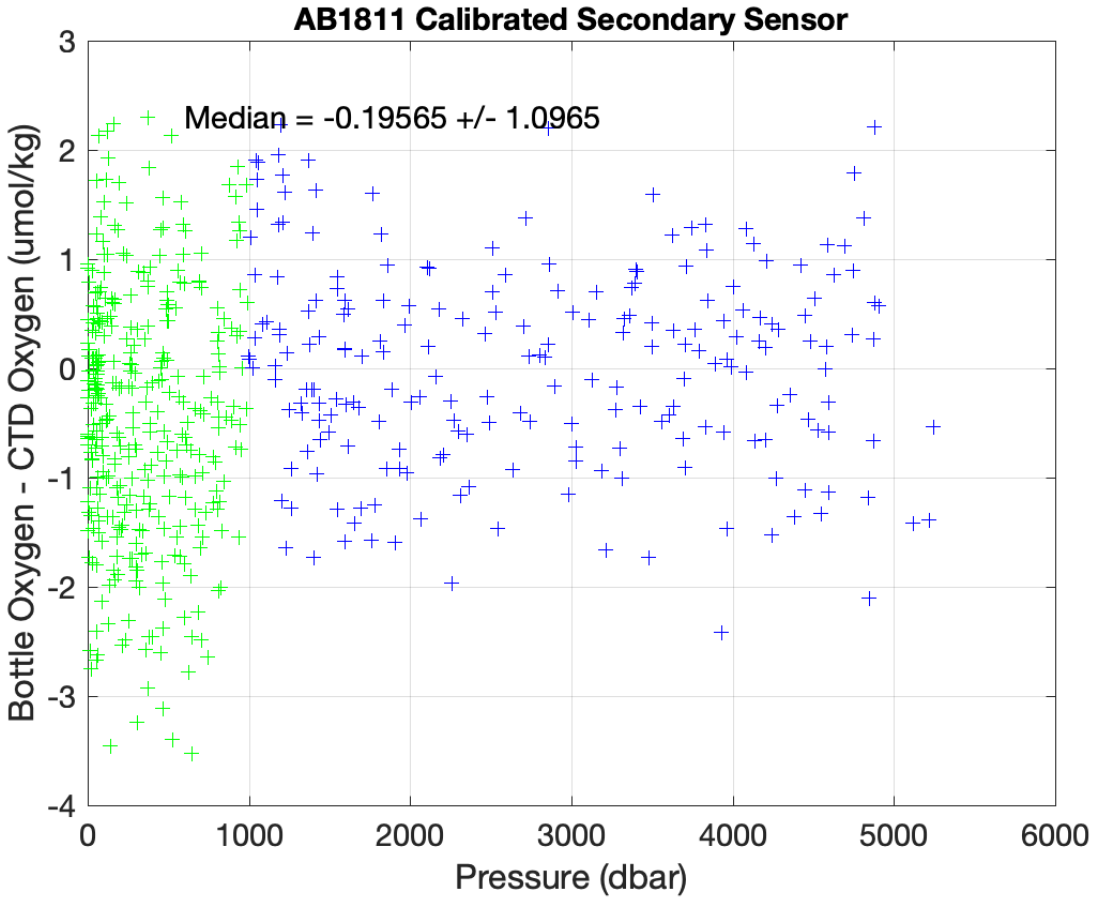

Figure 27: Bottle and calibrated secondary CTD oxygen differences plotted vs. pressure. The green crosses represent data points above 1000 dbar and the blue crosses are the data points below 1000 dbar. The median values shown were calculated using all data.

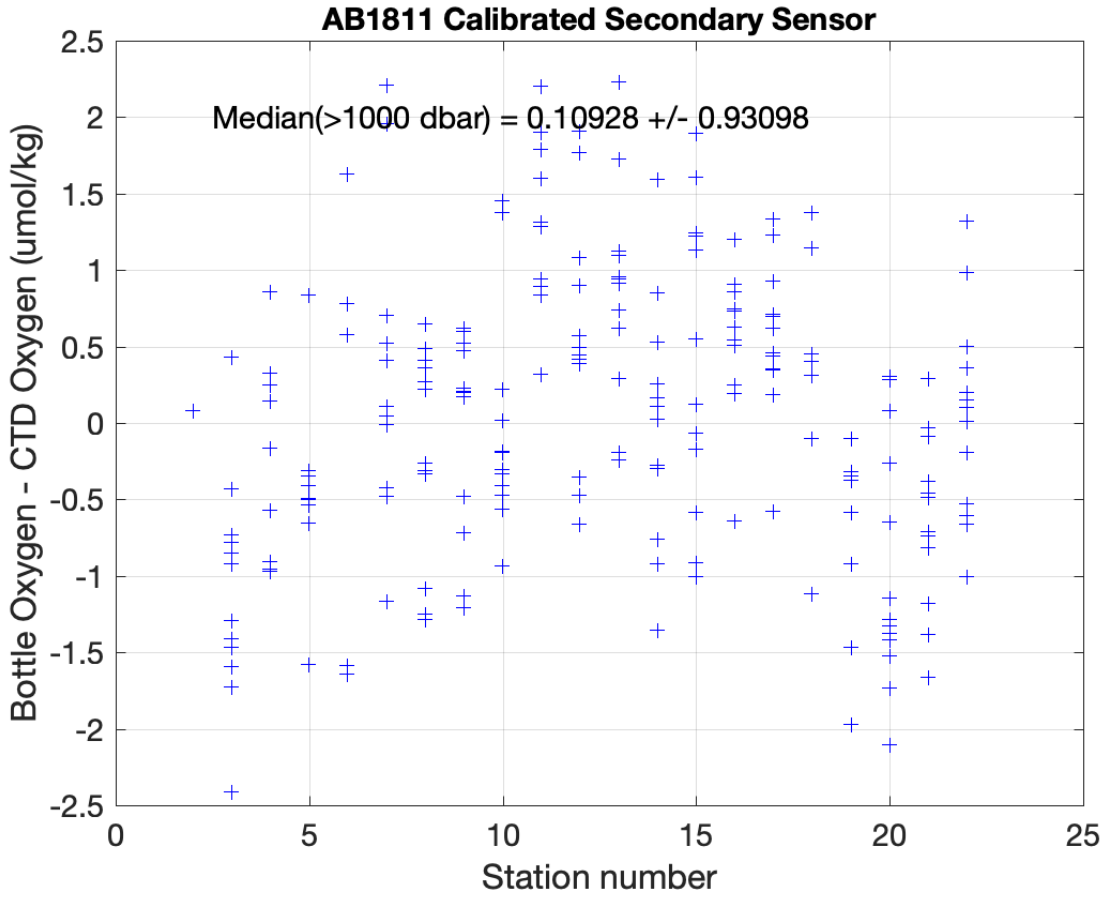

Figure 28: Bottle and calibrated secondary CTD oxygen differences (blue crosses) plotted vs. station below 1000 dbar. The median values shown were calculated only using data below 1000 dbar.

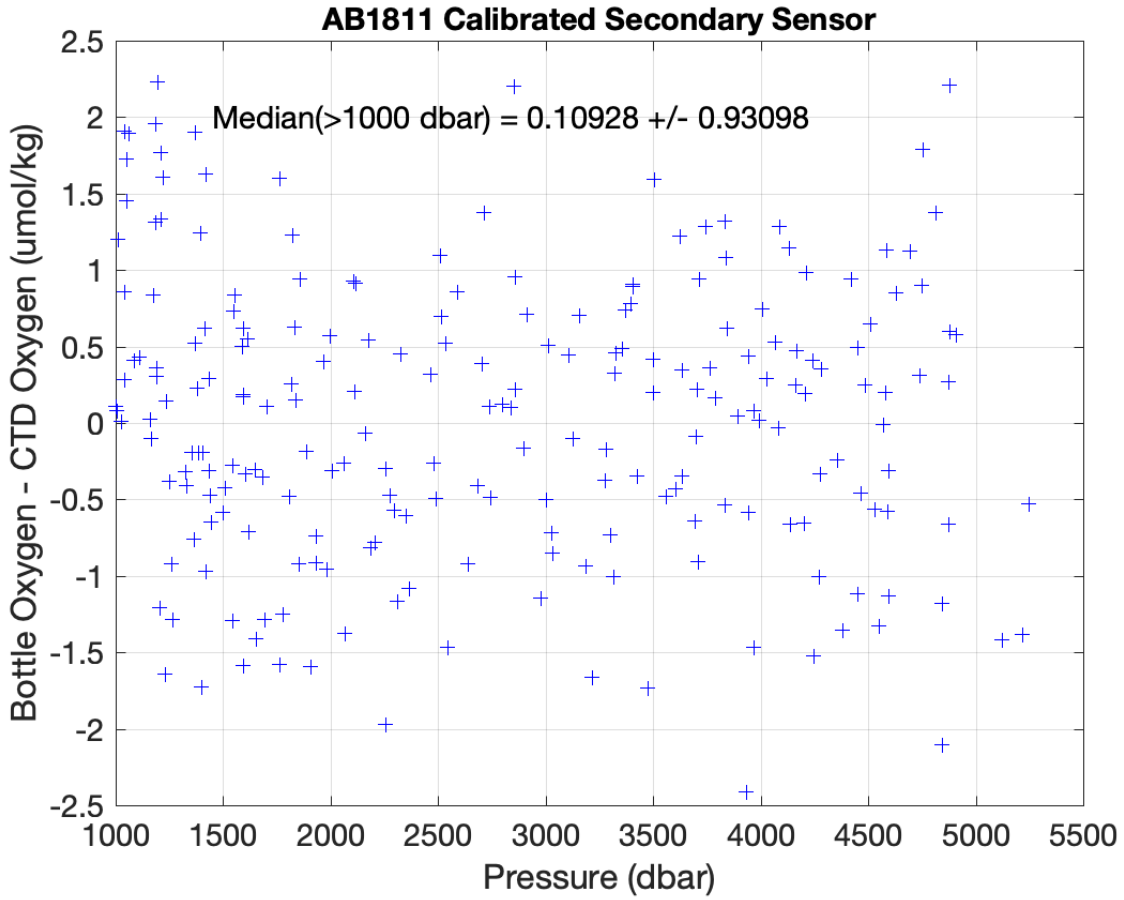

Figure 29: Bottle and calibrated secondary CTD oxygen differences (blue crosses) plotted vs. pressure below 1000 dbar. The median values shown were calculated only using data below 1000 dbar.

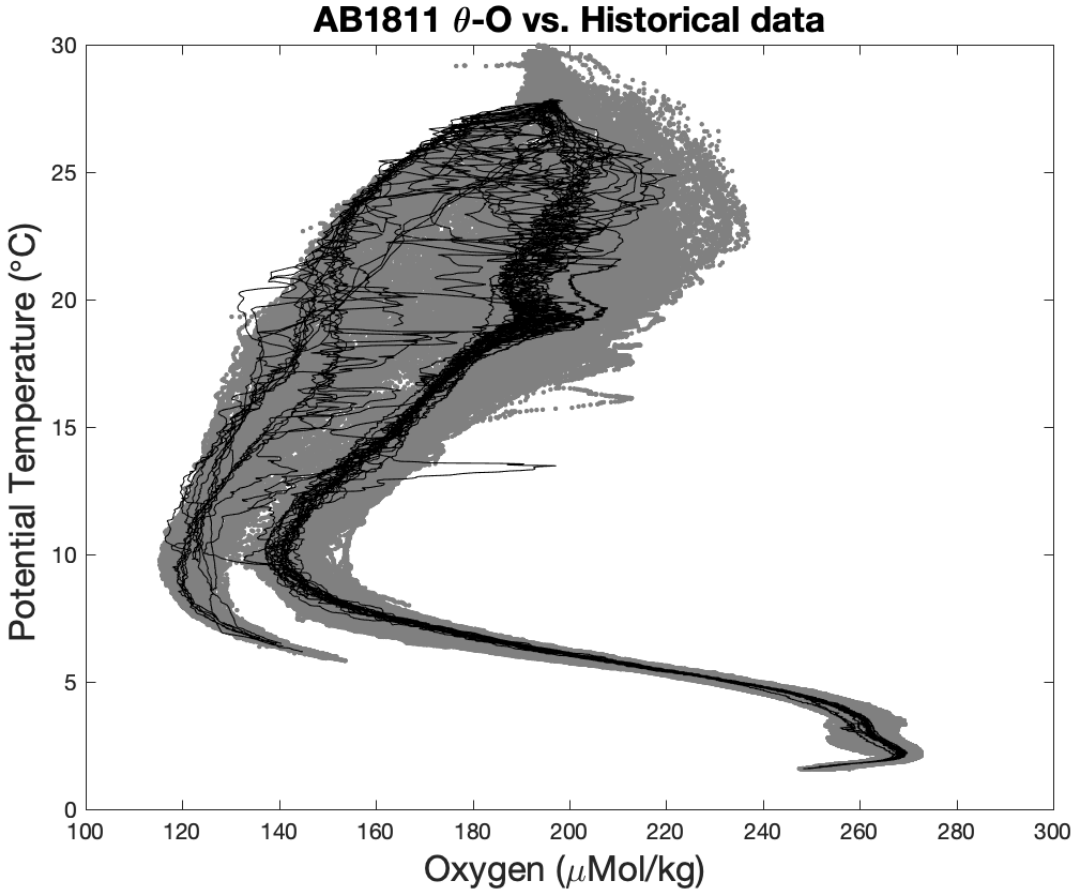

Figure 30: Potential Temperature (θ) - Oxygen diagram for all stations. The solid black lines represent AB1811 data. Solid gray lines are historical data collected during the project.

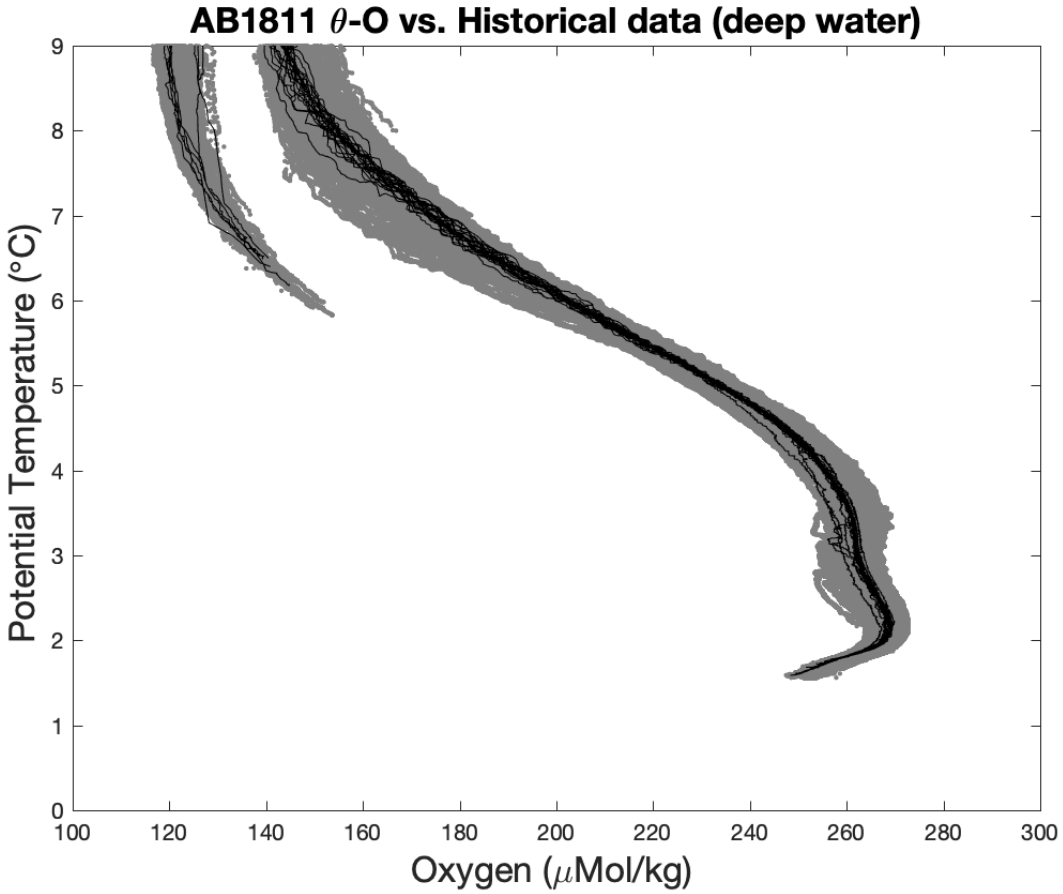

Figure 31: Potential Temperature (θ) - Oxygen diagram for all stations (deep water). The solid black lines represent AB1811 data. Solid gray lines are historical data collected during the project.

6 Final CTD Data Presentation

Post-cruise calibrations, determined from bottle data, 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 fell outside 2.57 standard deviations of the difference between samples and uncalibrated CTD values). A second pass was 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".

The final calibrated CTD data files were used to produce the section plots that follow and the table and station profile plots presented in the appendices. Vertical sections of potential temperature, CTD salinity, neutral density, and CTD oxygen are contoured for Abaco, 27N, 26N and NWPC sections conducted during AB1811 in Figures 32 through 47 (refer to Figure 1 for geographical locations of sections). For the Abaco section, nominal vertical exaggerations are 400:1 below 1000 dbar (lower panels) and 200:1 above 1000 dbar (upper panels).

In Appendix A, for each CTD station, the upper table presents "standard depths" of the CTD cast, while the lower tables lists the bottle CTD trip depths for the cast. Following the two tables, a page of 4 plots illustrate the data collected of the stations. Niskin bottle depths are indicated on the right side of the larger profile plot and bottle salinity and oxygen values are plotted as points in the three smaller plots. A WOCE formatted CTD cast summary file is shown in Appendix B. It lists information regarding the beginning, middle (bottom of the cast), and end of each CTD cast. Finally, a bottle summary file (WOCE formatted) is presented in Appendix C. This table lists the specific details associated with each Niskin bottle trip over the course of the entire cruise. The -999's in the tables represent missing data.

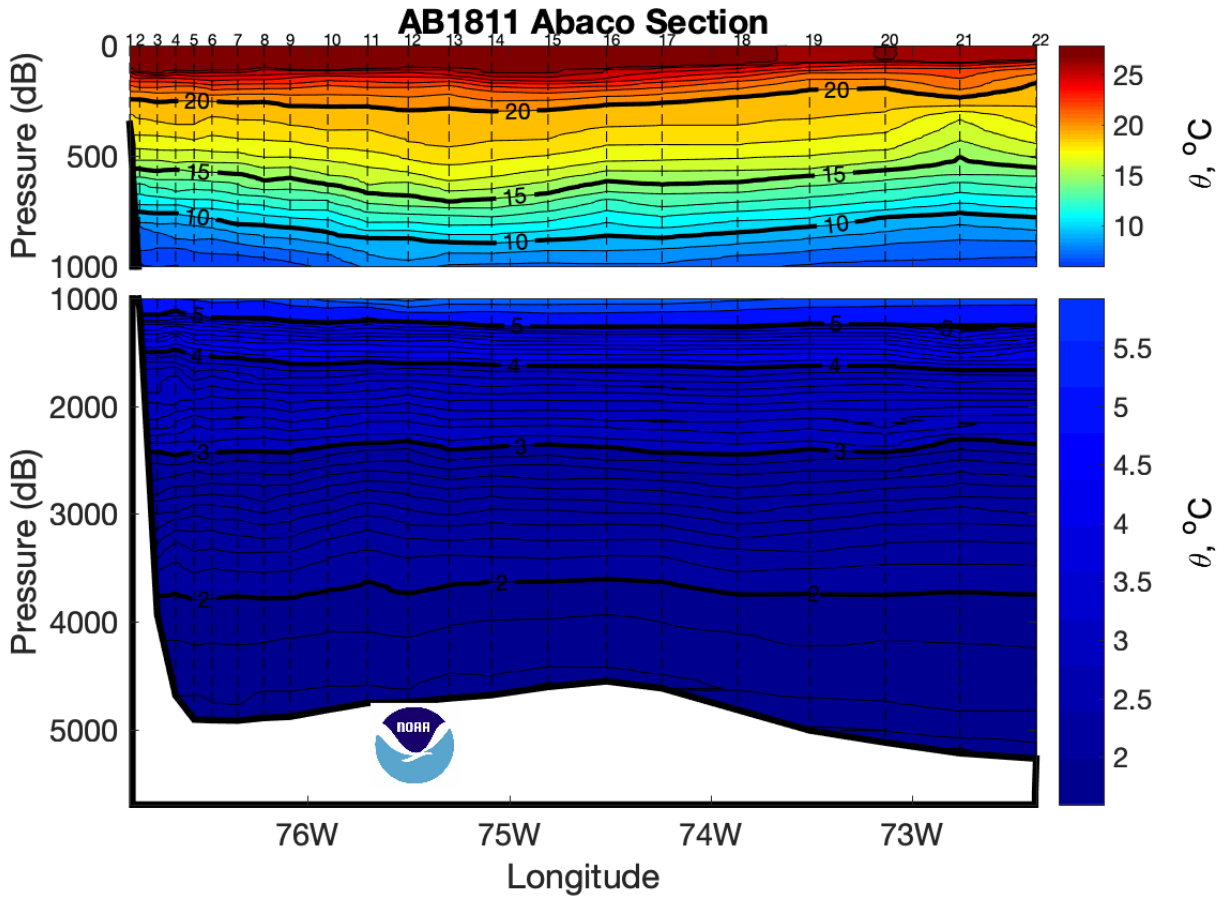

Figure 32: Potential Temperature (°C) section for the Abaco Section. Dashed vertical lines are the CTD station locations.

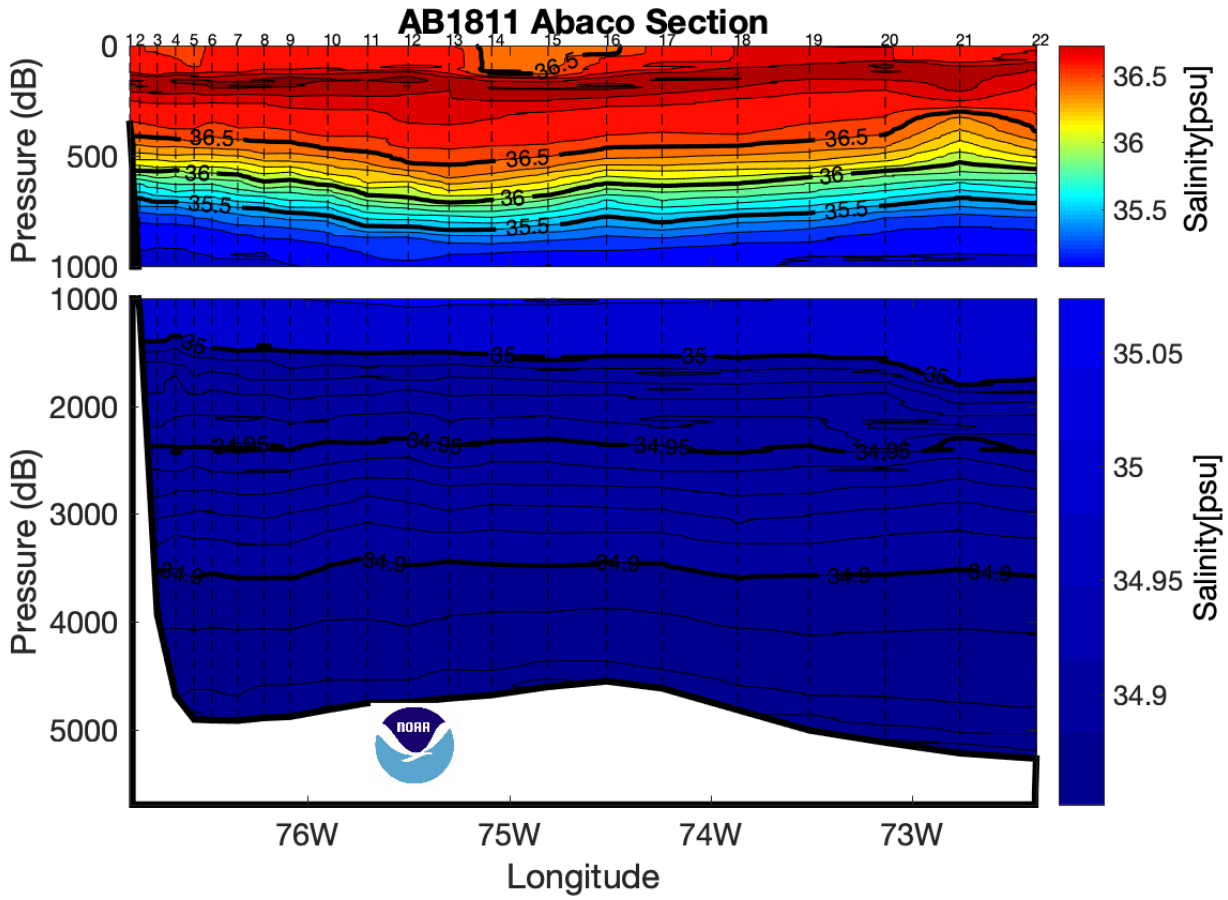

Figure 33: Salinity (PSS 78) section for the Abaco section. Dashed vertical lines are the CTD station locations.

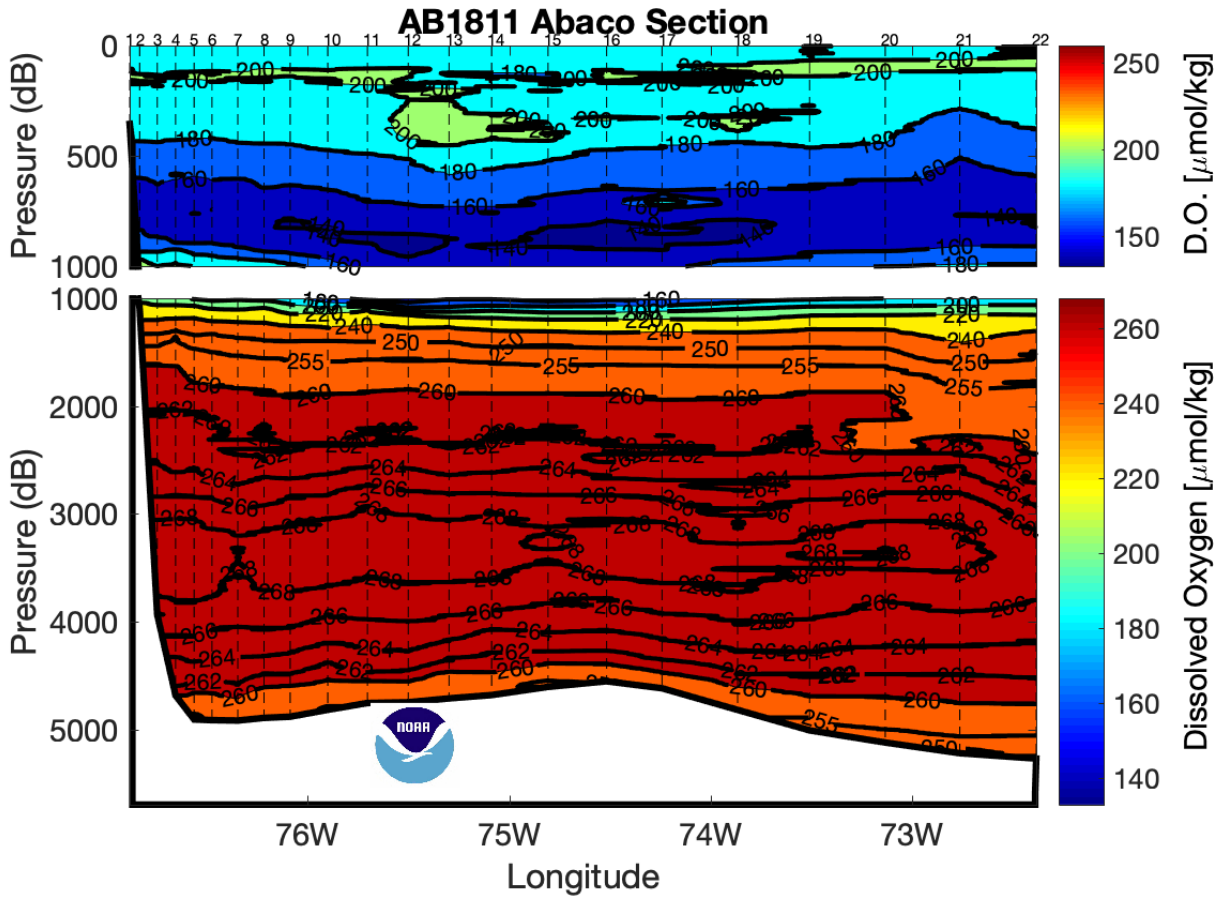

Figure 34: Dissolved Oxygen (μmol/kg) section for the Abaco Section. Dashed vertical lines are the CTD station locations.

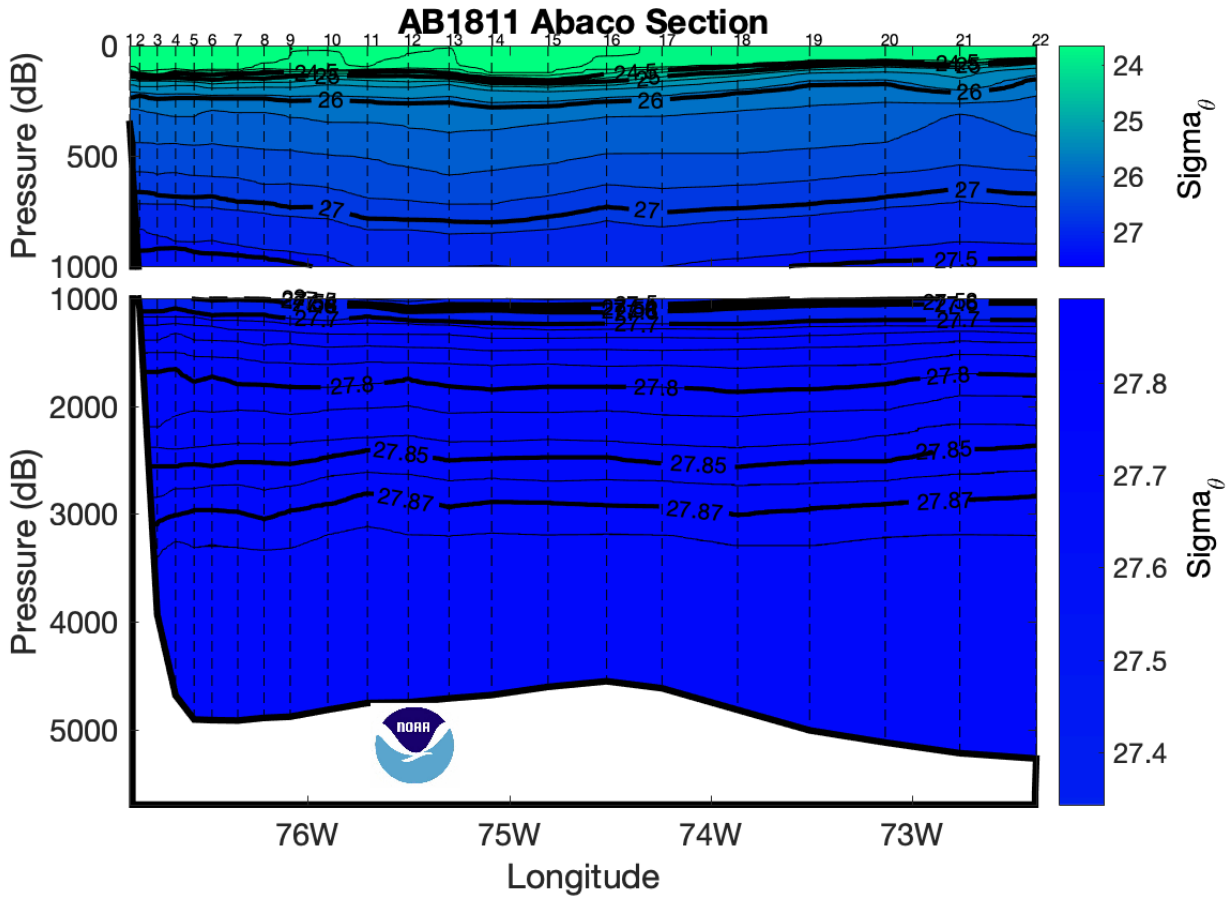

Figure 35: Neutral density (kg/m3) section for the Abaco Section. Dashed vertical lines are the CTD station locations.

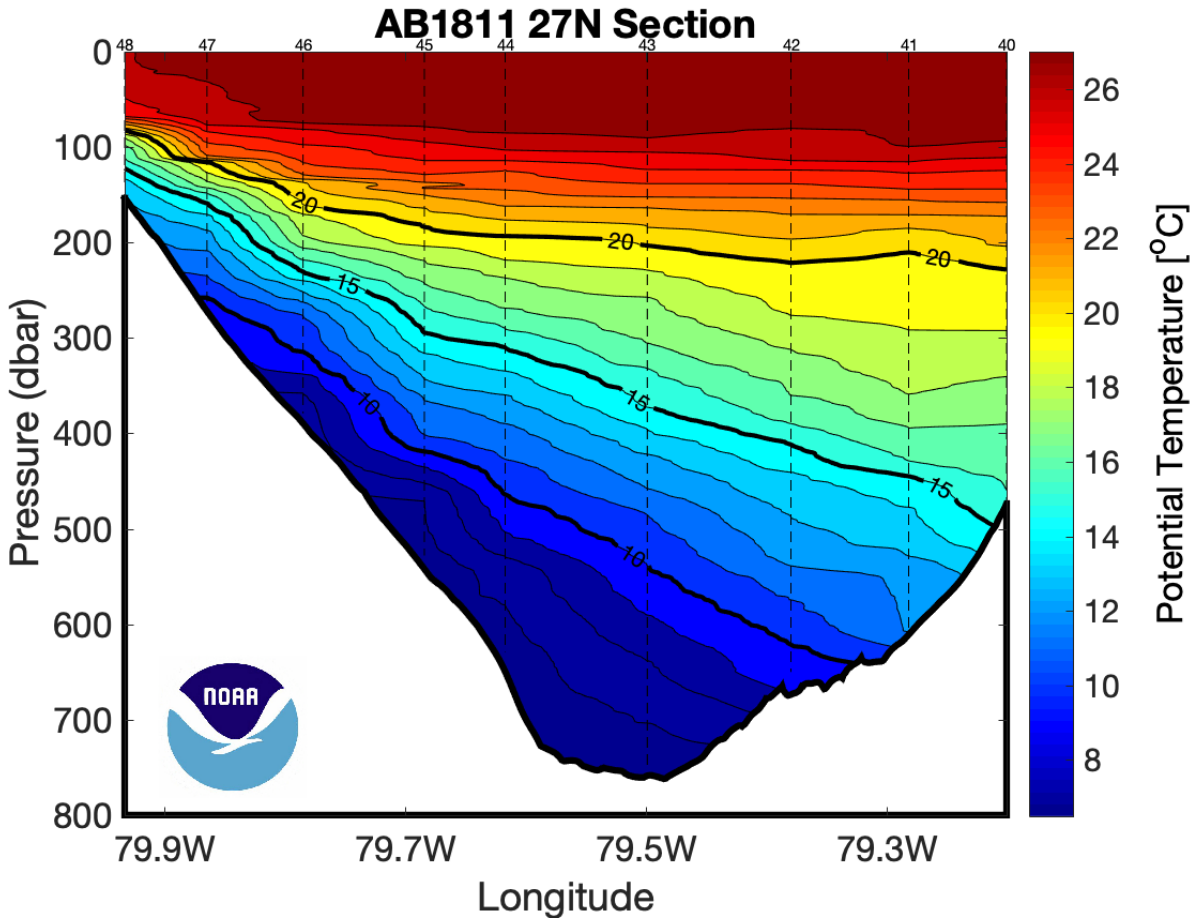

Figure 36: Potential Temperature (°C) section for the Florida Current North section. Dashed vertical lines are the CTD station locations.

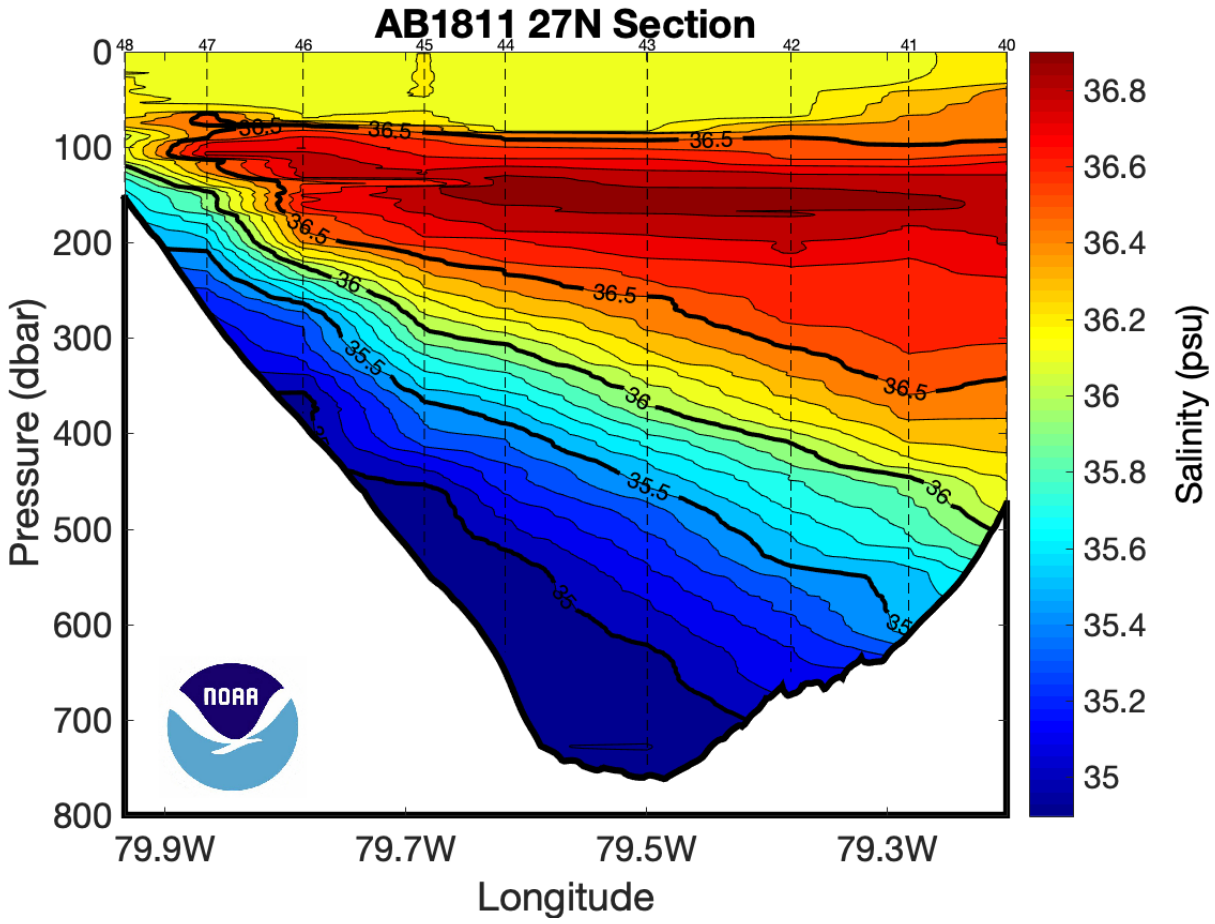

Figure 37: Salinity (PSS 78) section for the Florida Current North section. Dashed vertical lines are the CTD station locations.

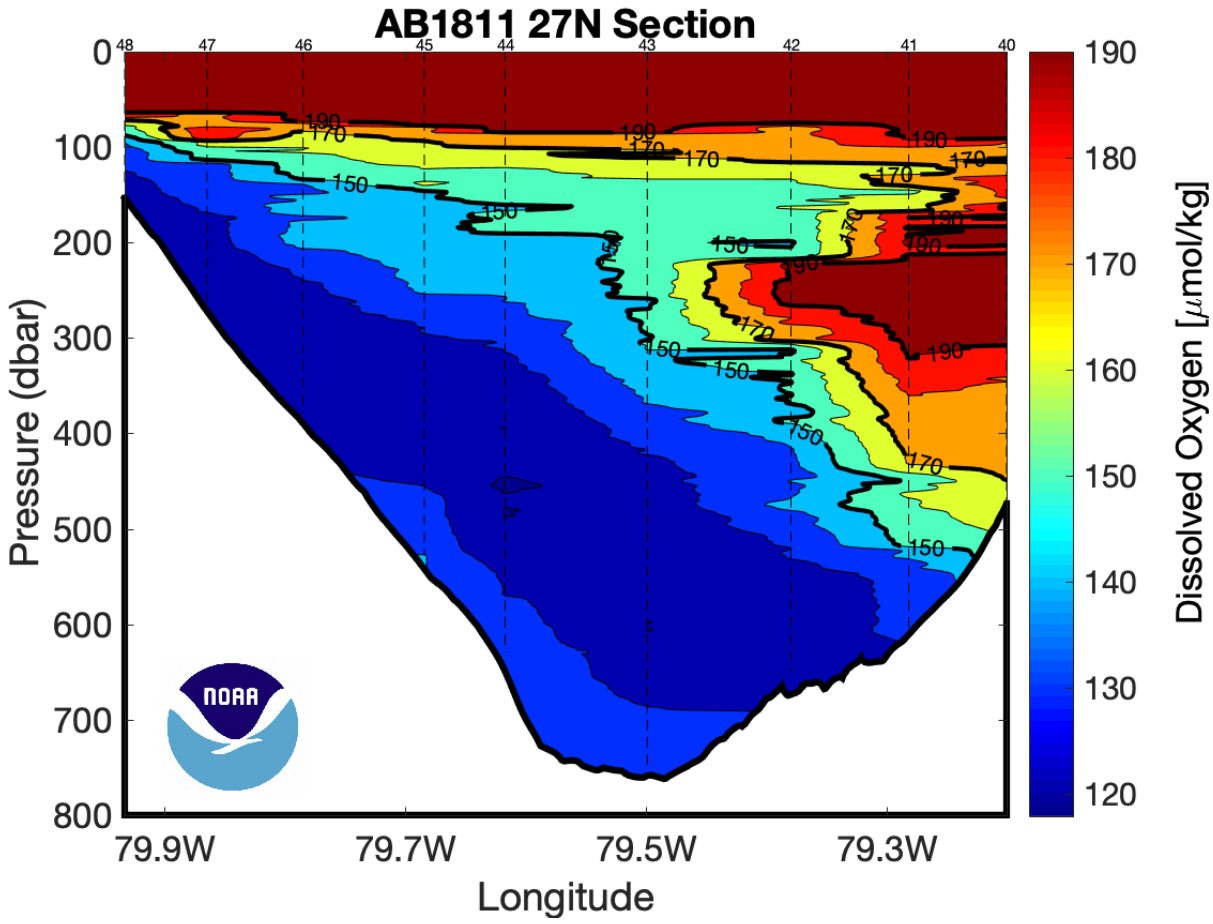

Figure 38: Dissolved Oxygen (μmol/kg) section for the Florida Current North section. Dashed vertical lines are the CTD station locations.

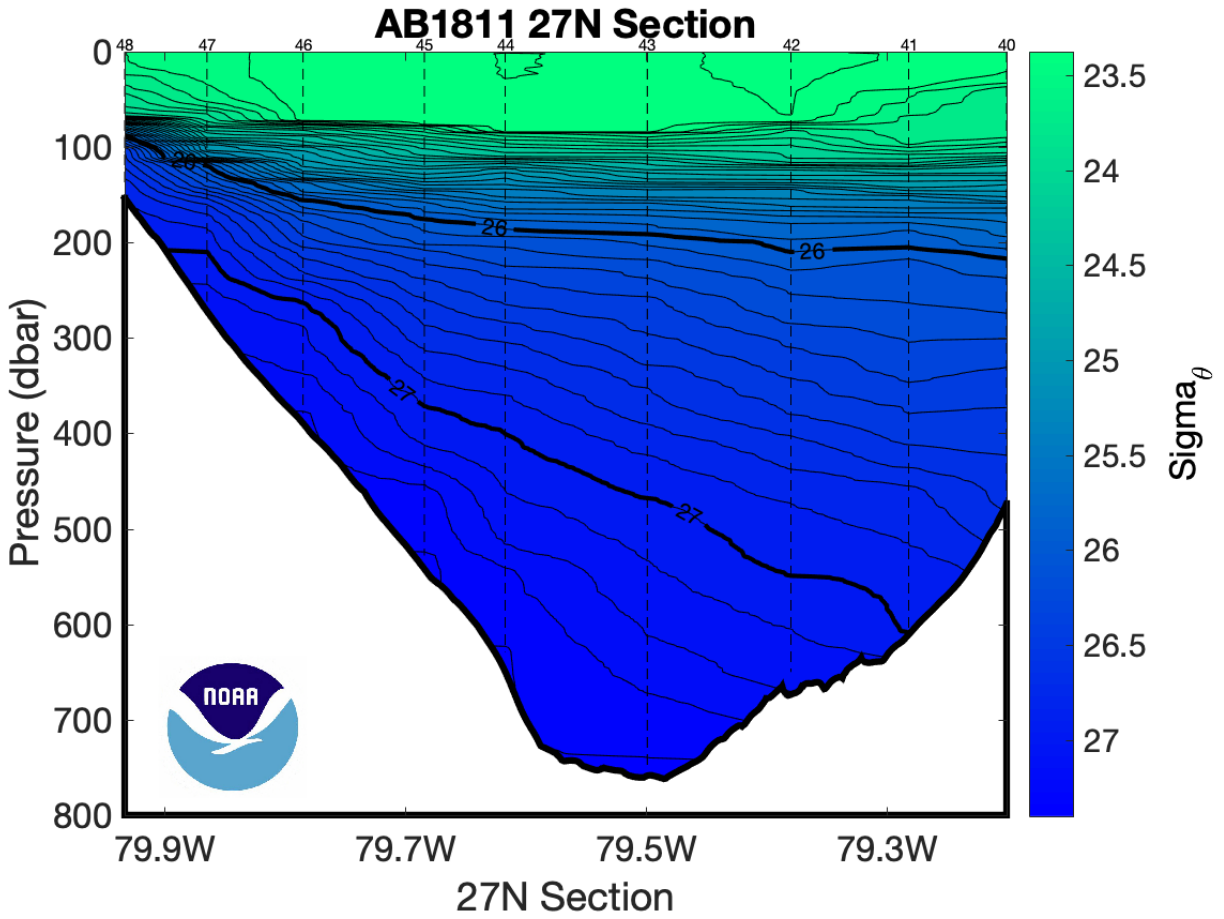

Figure 39: Neutral density (kg/m3) section for the Florida Current North section. Dashed vertical lines are the CTD station locations.

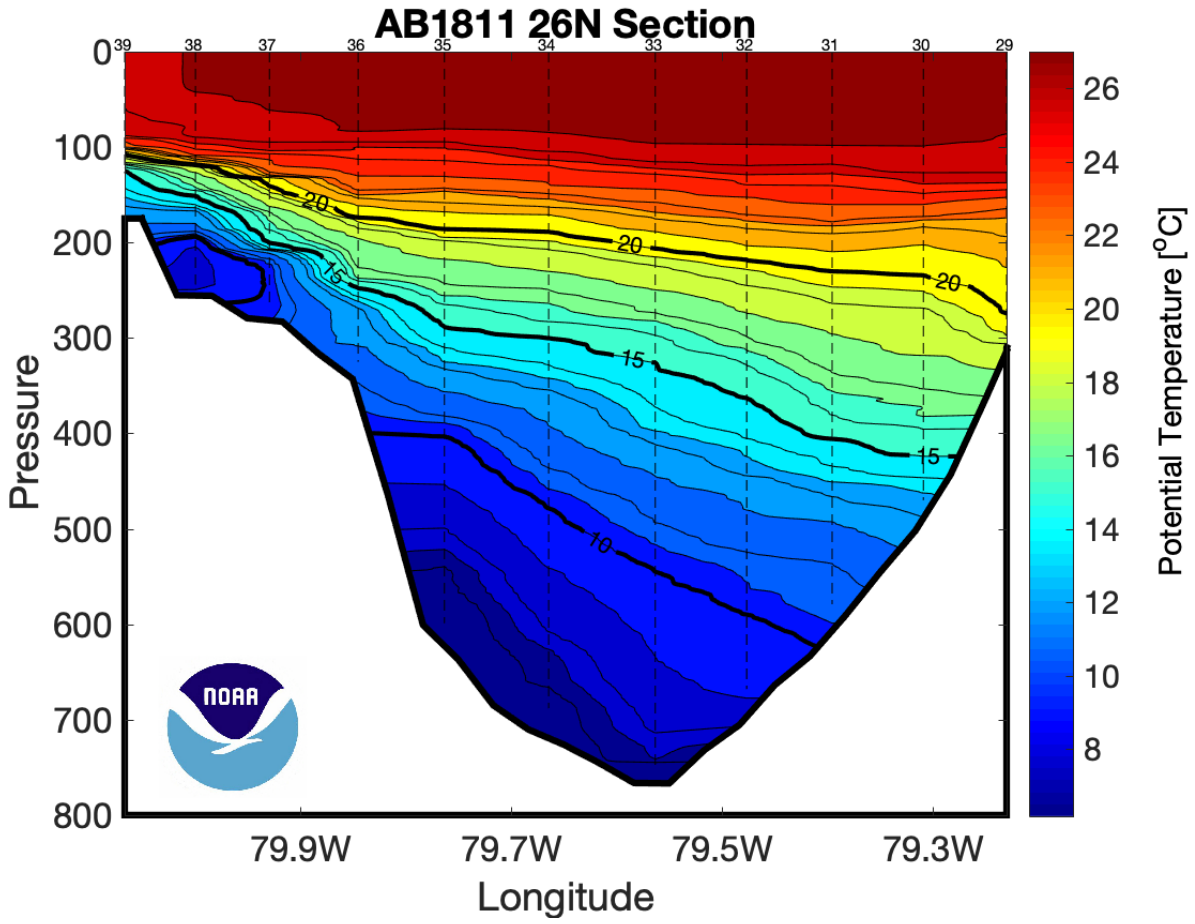

Figure 40: Potential Temperature (°C) section for the Florida Current South section. Dashed vertical lines are the CTD station locations.

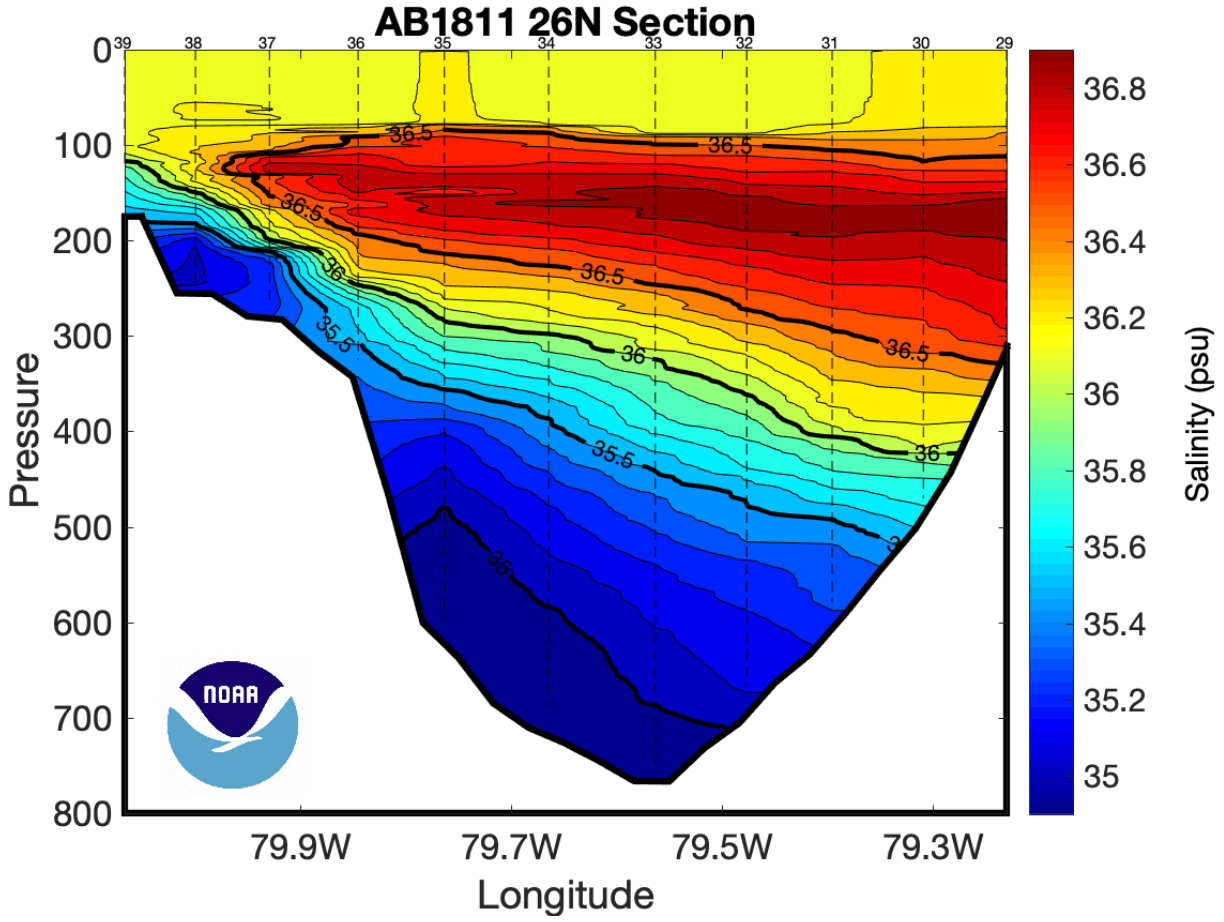

Figure 41: Salinity (PSS 78) section for the Florida Current South section. Dashed vertical lines are the CTD station locations.

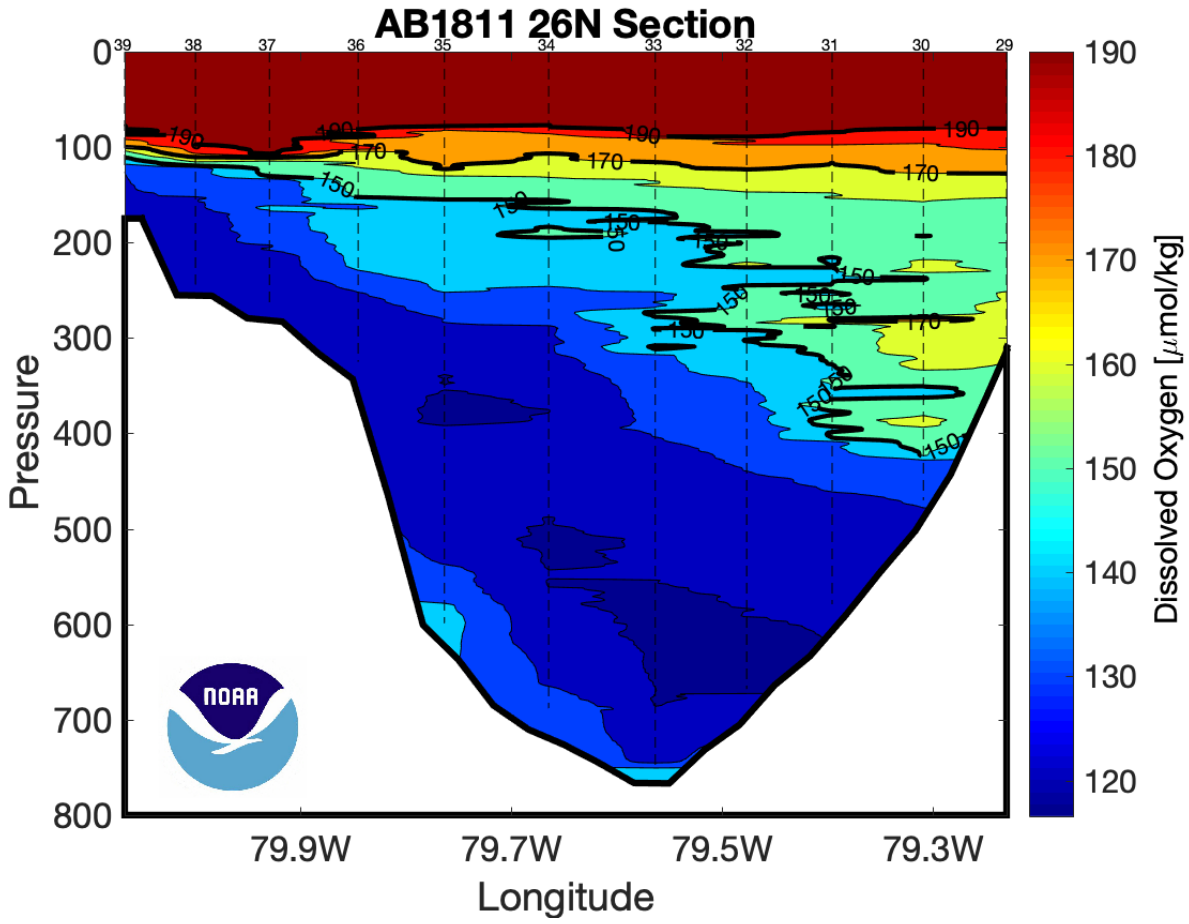

Figure 42: Dissolved Oxygen (μmol/kg) section for the Florida Current South section. Dashed vertical lines are the CTD station locations.

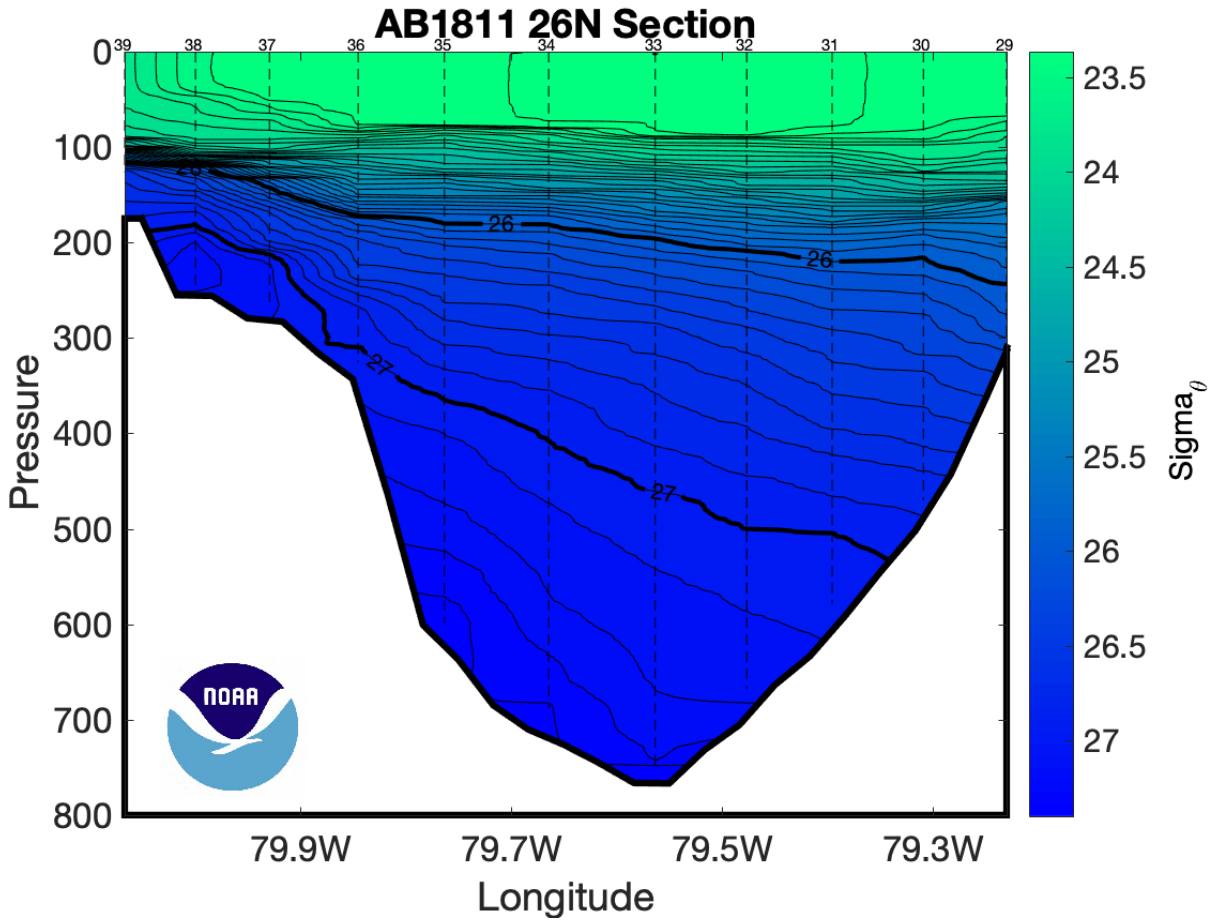

Figure 43: Neutral density (kg/m3) section for the Florida Current South section. Dashed vertical lines are the CTD station locations.

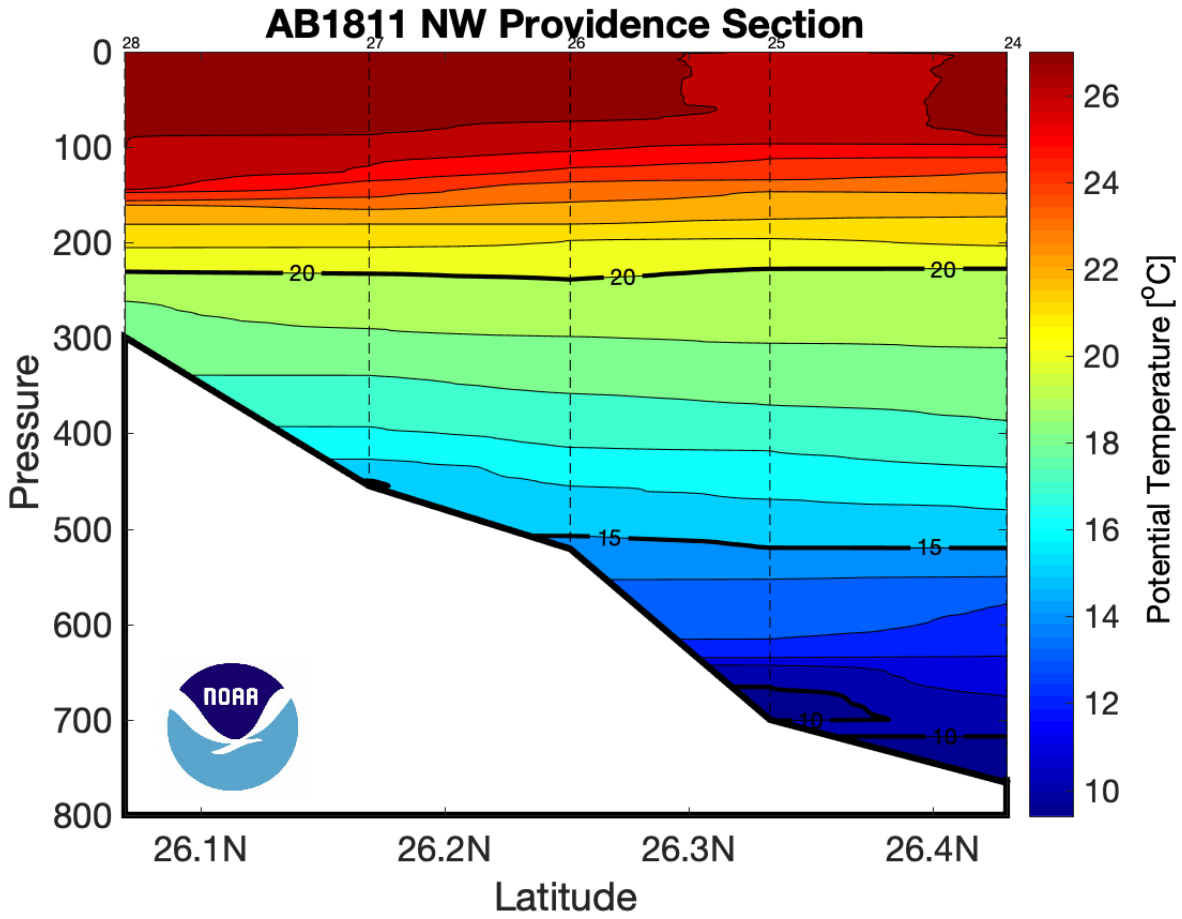

Figure 44: Potential Temperature (°C) section for the Northwest Providence Channel section. Dashed vertical lines are the CTD station locations.

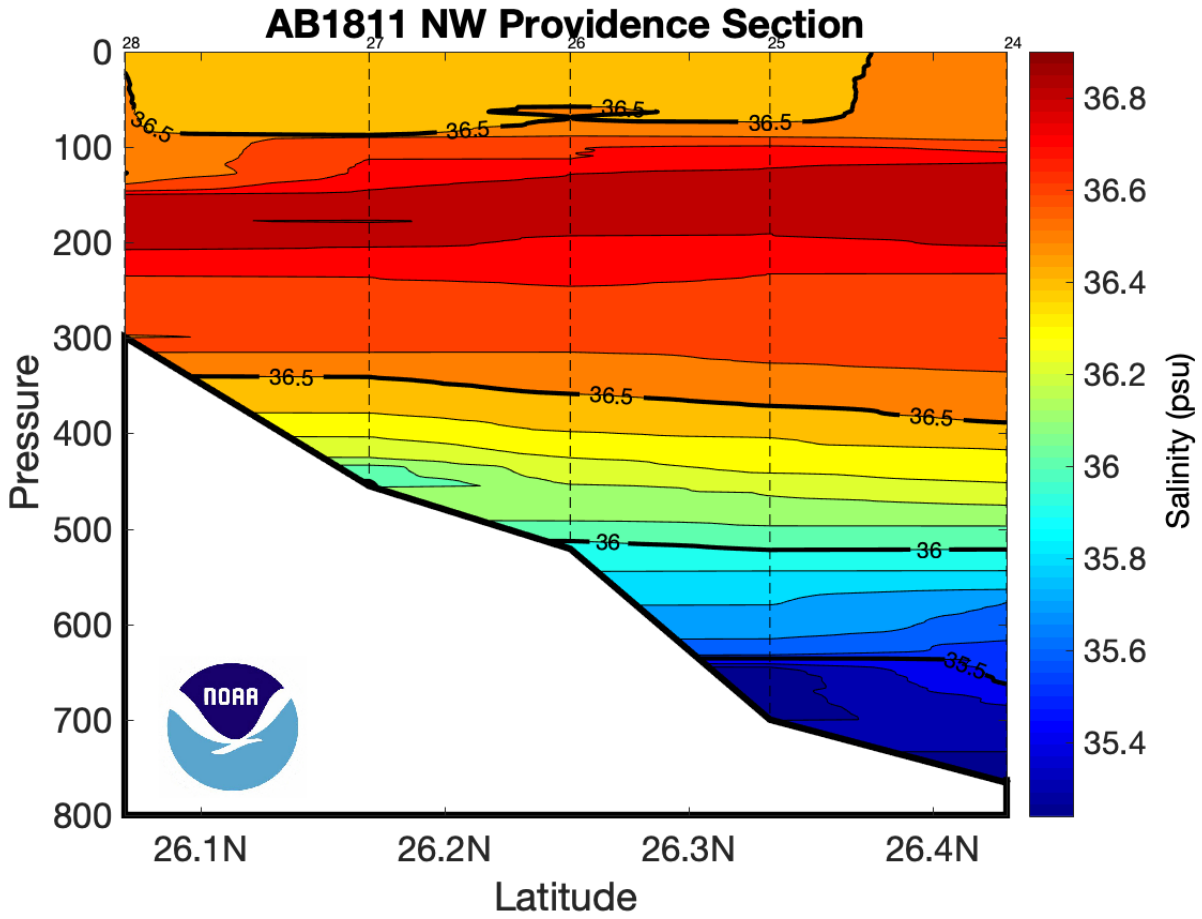

Figure 45: Salinity (PSS 78) section for the Northwest Providence Channel section. Dashed vertical lines are the CTD station locations.

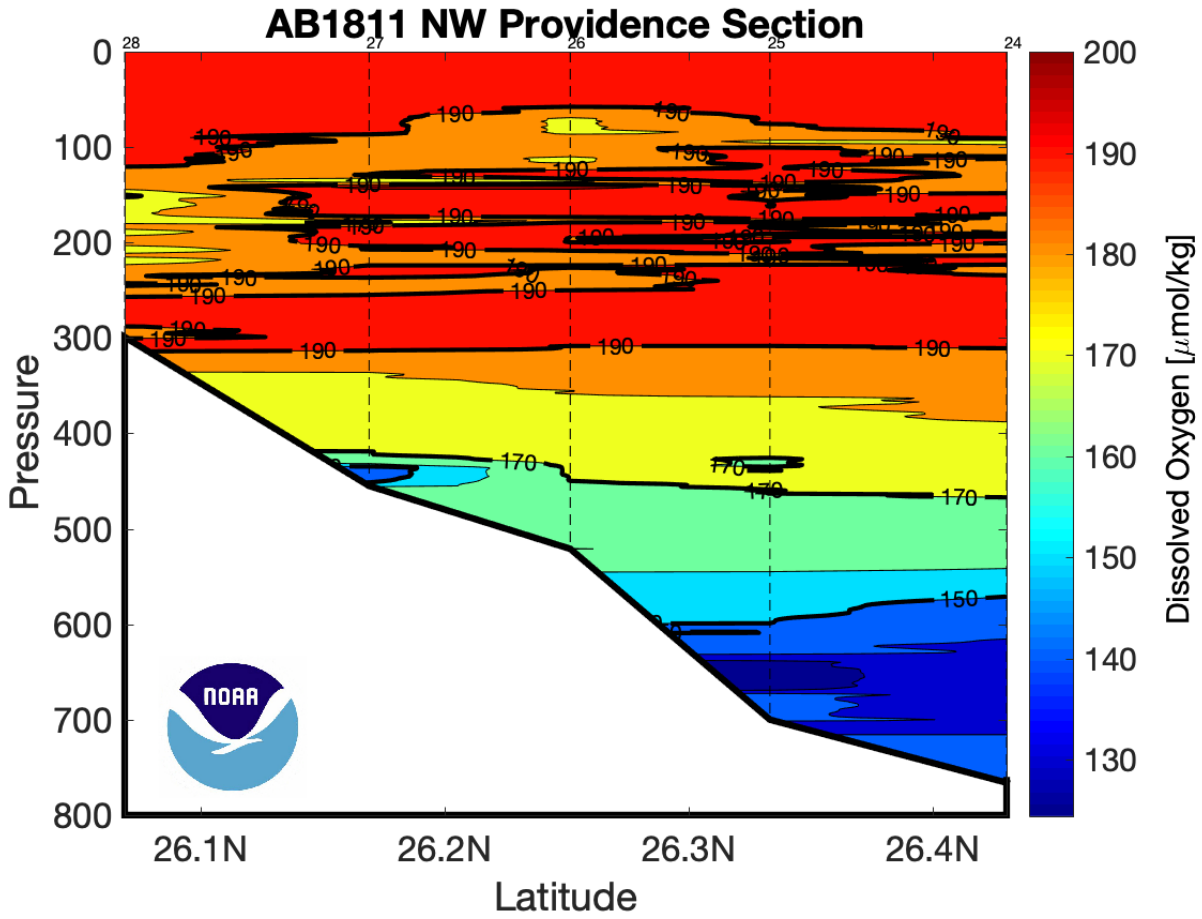

Figure 46: Dissolved Oxygen (μmol/kg) section for the Northwest Providence Channel section. Dashed vertical lines are the CTD station locations.

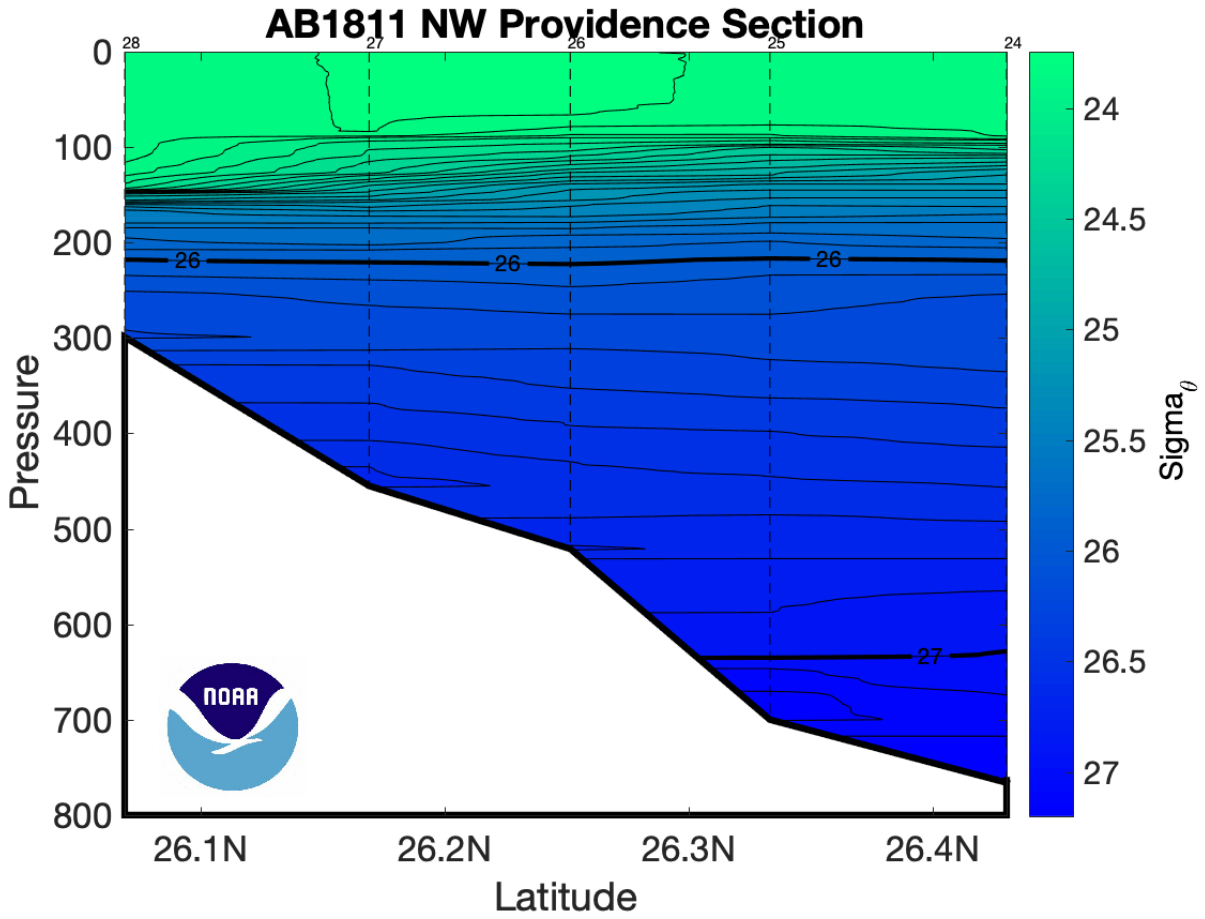

Figure 47: Neutral density (kg/m3) section for the Northwest Providence Channel section. Dashed vertical lines are the CTD station locations.

7 Acknowledgements

The successful completion of cruise AB1811 relied on dedicated assistance from many individuals both on shore and aboard the UNOLS ship R/V *Atlantic Explorer*. Investigators and members of the Western Boundary Time Series project and the RAPID/MOC programs were instrumental in planning and executing the cruise. Seagoing cruise participants exhibited dedication and camaraderie during their 17 days at sea. We also thank the officers and crew of the UNOLS ship R/V *Atlantic Explorer* for their professionalism and assistance in accomplishing the mission.

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A portion of this research was conducted within the jurisdictional waters of the Bahamas. Bahamian research clearance was obtained prior to the AB1811 survey with a waiver of port entry. We thank the Bahamian government for providing this request of research clearance.

8 References

Bacon, S., F. Culkin, N. Higgs, P. Ridout, 2007: IAPSO standard seawater: Definition of the uncertainty in the calibration procedure, and stability of recent batches, *J. Atmos. Ocean. Technol.*, **24**, 1785-1799.

Carpenter, J. H., 1965a: The accuracy of the Winkler method for dissolved oxygen analysis, *Limnology and Oceanography*, **10**, 135-140.

Carpenter, J. H., 1965b: The Chesapeake Bay Institute Technique for the Winkler dissolved oxygen method, *Limnology and Oceanography*, **10**, 141-143.

Culberson, C. H., G. Knapp, M. C. Stalcup, R. T. Williams, and F. Zemlyak, 1991: A Comparison of methods for the determination of dissolved oxygen in seawater. *Woods Hole Oceanogr. Inst. WHPO*, **91-2**, 77p.

Fine, R. A., and R. L. Molinari (1988), A continuous deep western bound-ary current between Abaco (26.5Â°N) and Barbados (13Â°N), *Deep-SeaRes.*, Part A, **35**, 1441-1450, doi:10.1016/0198-0149(88)90096-9.

Firing, E., 1991: Acoustic Doppler current profiling measurements and navigations. *WHP Hydrographic Operations and Methods*, 1-24.

Friederich, G., L. A. Codispoti, and C. M. Carole, 1991: An easy-to-construct automated Winkler titration system, *Monterey Bay Aquarium Research Institute Technical Report*, **91**, 31.

Kawano, T., M. Aoyama, T. Joyce, H. Uchida, Y. Takatsuki, and M. Fukasawa, 2006: The latest batch-to-batch difference table of standard seawater and its application to the WOCE onetime sections, *J. Oceanogr.*, **62**, 777-792.

Landgdon, C., 2010: Determination of dissolved oxygen in seawater by Winkler titration using the amperometric technique, *IOCCP Report*, **14-134**, 18p.

Latif, M., and T. P. Barnett, 1996: Decadal climate variability over the North Pacific and North America: Dynamics and predictability, *J. Climate*, **9**, 2407-2423.

Molinari, R. L., R. A. Fine, W. D. Wilson, R. G. Curry, J. Abell, and M. S. McCartney, 1998: The arrival of recently formed Labrador Sea Water in the Deep Western Boundary Current at 26.5°N, *Geophys. Res. Lett.*, **25**, 2249-2252.

Sea-Bird Electronics, Inc., 2010: Application Note No. 31: Computing temperature and conductivity slope and offset correction coefficients from laboratory calibrations and salinity bottle samples. Retrieved from http://www.seabird.com/application_notes/AN31.htm.

Spain, P. F., Dorson, D. L., Rossby,H. T., PEGASUS: a simple, acoustically tracked, velocity profiler, *Deep Sea Res.*, **28A**, 1553-1567, 1981.

van Sebille, E., M. O. Baringer, W. E. Johns, C. S. Meinen, L. M. Beal, M. F. de Jong, and H. M. van Aken, 2011: Propagation pathways of classical Labrador Sea water from its source region to 26Â°N, *J. Geophys. Res.*, **116**, C12027

Vaughan, S. L., and R. L. Molinari, 1997: Temperature and salinity variability in deep western boundary current, *J. Phys. Oceanogr.*, **27**, 749-761.

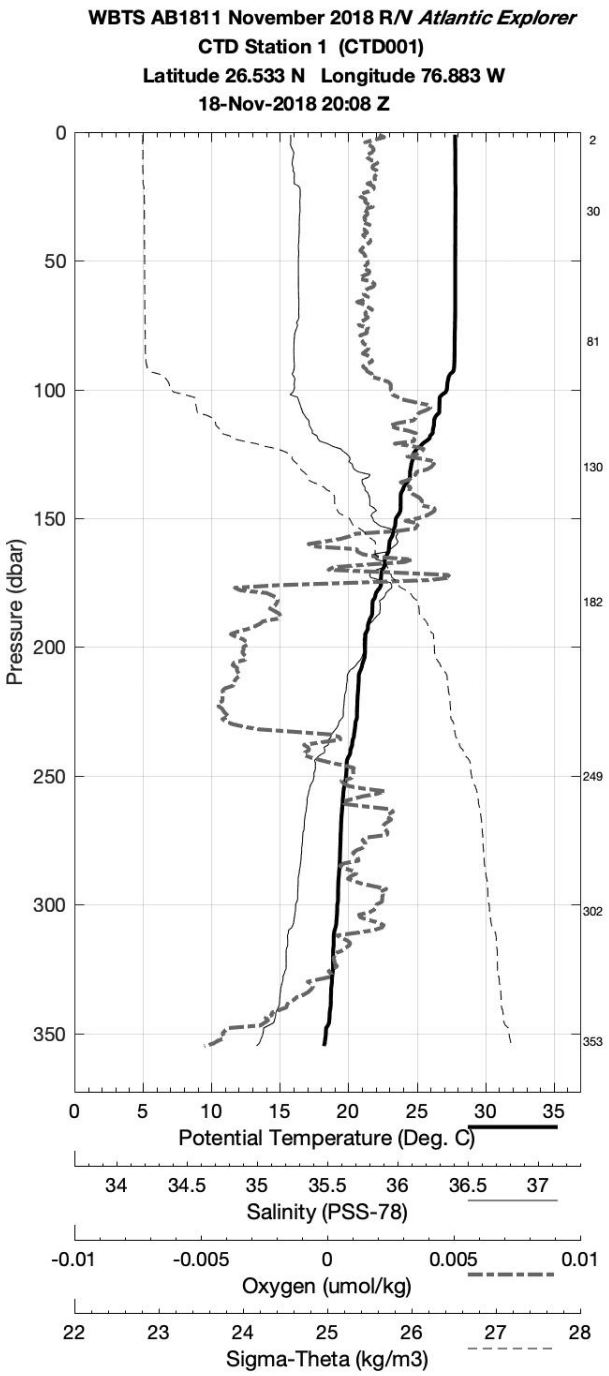
Weiss, R. F., 1970: The solubility of nitrogen, oxygen and argon in water and seawater, *Deep-Sea Res.*, **17**, **4**, Pages 721-735.

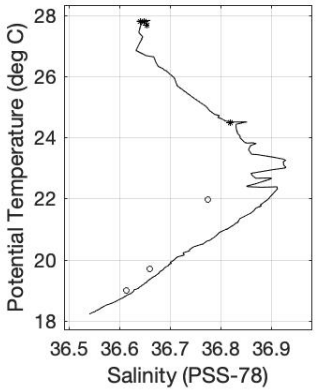
A Hydrographic - CTD Data

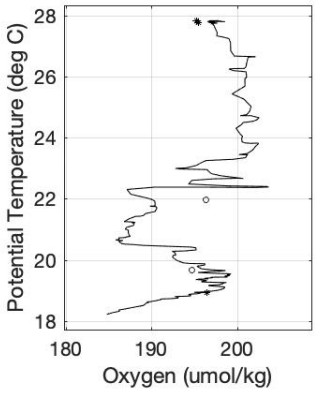
WBTS AB1811 November 2018 R/V *Atlantic Explorer*
CTD Station 1 (CTD001)
Latitude 26.533N Longitude 76.883W
18-Nov-2018 20:08Z

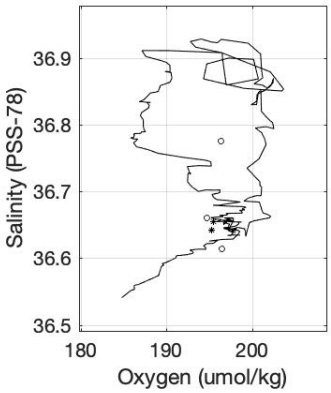
Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	27.796	27.796	36.635	198.2	0.004	23.691
10	27.813	27.810	36.641	197.3	0.042	23.691
20	27.818	27.814	36.644	197.3	0.084	23.693
30	27.829	27.822	36.660	197.0	0.126	23.702
50	27.816	27.804	36.656	197.3	0.210	23.705
75	27.808	27.790	36.654	196.7	0.315	23.708
100	27.216	27.193	36.644	199.1	0.420	23.894
125	24.779	24.752	36.788	201.1	0.512	24.769
150	23.512	23.480	36.860	201.2	0.588	25.204
200	21.263	21.224	36.834	187.8	0.712	25.829
250	19.880	19.833	36.699	196.2	0.818	26.103
300	19.250	19.195	36.648	198.0	0.915	26.231

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
353	1	18.319	18.658	−999.000	−999.0
302	2	19.033	18.978	36.614	196.5
250	3	19.737	19.691	36.660	194.7
183	4	22.003	21.967	36.776	196.3
130	5	24.522	24.494	36.820	209.5
81	6	27.693	27.674	36.655	195.4
30	7	27.788	27.780	36.648	219.2
3	8	27.804	27.804	36.642	195.2


WBTS AB1811 November 2018 R/V Atlantic Explorer
CTD Station 1 (CTD001)
Latitude 26.533 N Longitude 76.883 W
18-Nov-2018 20:08 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS-78)
Oxygen (umol/kg)
Sigma-Theta (kg/m3)


Potential Temperature (deg C)
Salinity (PSS-78)

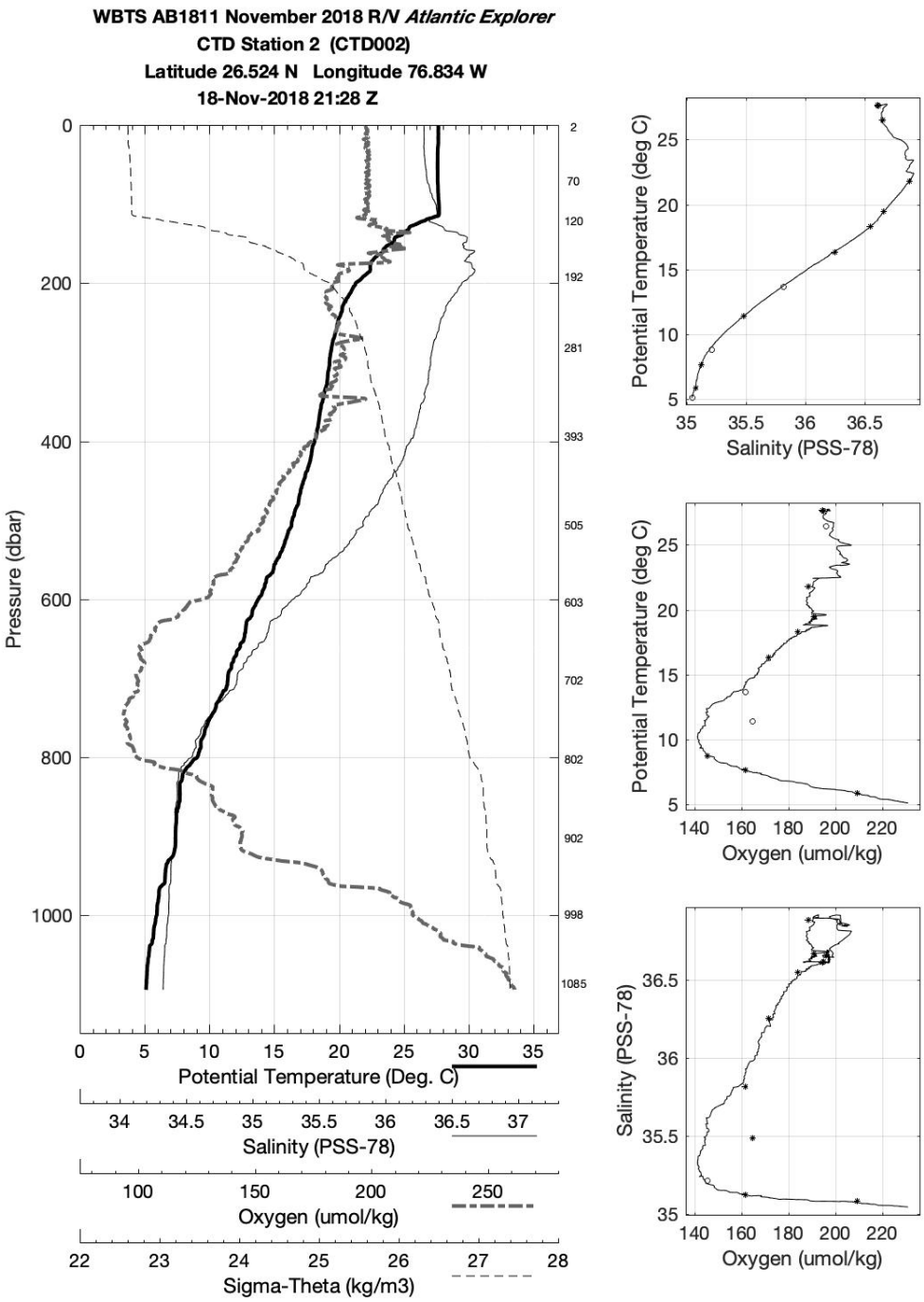

Potential Temperature (deg C)
Oxygen (umol/kg)


Salinity (PSS-78)
Oxygen (umol/kg)

WBTS AB1811 November 2018 R/V *Atlantic Explorer*
CTD Station 2 (CTD002)
Latitude 26.524N Longitude 76.834W
18-Nov-2018 21:28Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	27.666	27.666	36.610	196.7	0.004	23.716
10	27.670	27.667	36.610	196.8	0.042	23.715
20	27.669	27.664	36.610	197.1	0.084	23.716
30	27.630	27.623	36.610	197.1	0.125	23.729
50	27.621	27.609	36.617	197.3	0.209	23.739
75	27.648	27.631	36.638	197.3	0.313	23.748
100	27.737	27.713	36.681	197.3	0.418	23.753
125	26.041	26.013	36.681	198.5	0.519	24.298
150	24.029	23.997	36.844	203.4	0.601	25.039
200	21.323	21.284	36.837	188.9	0.729	25.815
250	19.960	19.913	36.706	190.6	0.835	26.087
300	19.325	19.270	36.649	189.5	0.933	26.212
400	18.194	18.123	36.528	184.3	1.117	26.412
500	16.471	16.389	36.248	173.2	1.284	26.617
600	13.870	13.782	35.822	159.2	1.431	26.869
700	11.517	11.426	35.488	144.3	1.557	27.077
800	9.148	9.057	35.212	144.3	1.662	27.275
900	7.477	7.385	35.113	168.3	1.744	27.453
1000	6.012	5.920	35.074	207.6	1.813	27.621

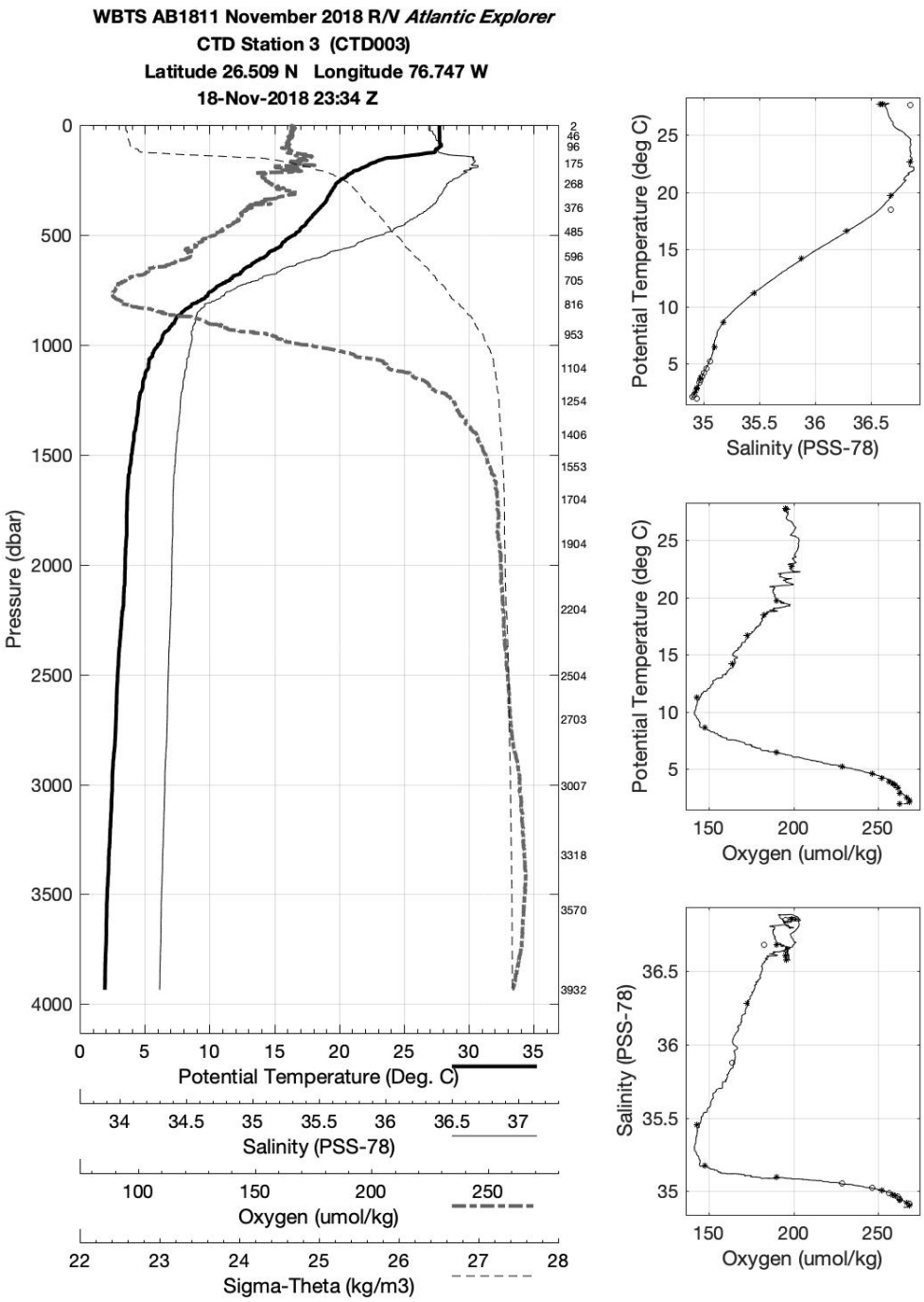
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
1086	1	5.236	5.142	35.046	252.2
999	2	5.939	5.847	35.078	209.4
902	3	7.710	7.616	35.120	161.6
802	4	8.890	8.800	35.211	145.3
702	5	11.487	11.395	35.484	164.5
604	6	13.749	13.661	35.817	161.6
505	7	16.418	16.335	36.251	171.6
394	8	18.337	18.267	36.548	184.0
282	9	19.509	19.457	36.666	190.8
192	10	21.814	21.776	36.880	188.5
121	11	26.487	26.460	36.657	196.1
71	12	27.622	27.606	36.618	194.7
3	13	27.646	27.645	36.608	194.4


WBTS AB1811 November 2018 R/V Atlantic Explorer
CTD Station 2 (CTD002)
Latitude 26.524 N Longitude 76.834 W
18-Nov-2018 21:28 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS-78)
Oxygen (umol/kg)
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS-78)
Potential Temperature (deg C)
Oxygen (umol/kg)
Salinity (PSS-78)
Oxygen (umol/kg)

WBTS AB1811 November 2018 R/V *Atlantic Explorer*
CTD Station 3 (CTD003)
Latitude 26.509N Longitude 76.747W
18-Nov-2018 23:34Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	27.717	27.717	36.576	197.3	0.004	23.673
10	27.730	27.727	36.575	196.8	0.042	23.669
20	27.727	27.723	36.578	196.8	0.084	23.673
30	27.739	27.732	36.600	196.6	0.127	23.686
50	27.755	27.743	36.616	196.6	0.211	23.695
75	27.764	27.747	36.635	195.9	0.316	23.708
100	27.768	27.745	36.658	195.8	0.422	23.726
125	27.302	27.273	36.642	196.9	0.526	23.867
150	23.675	23.643	36.852	200.3	0.613	25.150
200	21.663	21.624	36.841	197.7	0.741	25.724
250	20.143	20.097	36.724	188.6	0.850	26.052
300	19.493	19.438	36.666	196.3	0.950	26.181
400	18.248	18.178	36.540	181.5	1.136	26.408
500	16.641	16.558	36.279	173.3	1.304	26.602
600	14.328	14.238	35.900	165.4	1.453	26.832
700	11.695	11.603	35.512	146.2	1.581	27.062
800	9.339	9.247	35.231	143.8	1.689	27.259
900	7.375	7.284	35.112	170.6	1.774	27.467
1000	6.116	6.023	35.084	200.8	1.842	27.616
1100	5.395	5.298	35.058	226.4	1.899	27.686
1200	4.913	4.811	35.033	240.2	1.952	27.723
1300	4.591	4.482	35.017	248.3	2.001	27.748
1400	4.307	4.192	34.999	254.0	2.050	27.765
1500	4.102	3.981	34.987	257.2	2.097	27.778
1750	3.781	3.640	34.973	260.8	2.212	27.801
2000	3.658	3.495	34.965	261.8	2.327	27.810
2500	3.119	2.916	34.943	264.0	2.556	27.847
3000	2.741	2.496	34.921	267.7	2.777	27.867
3500	2.401	2.111	34.901	269.2	2.991	27.883

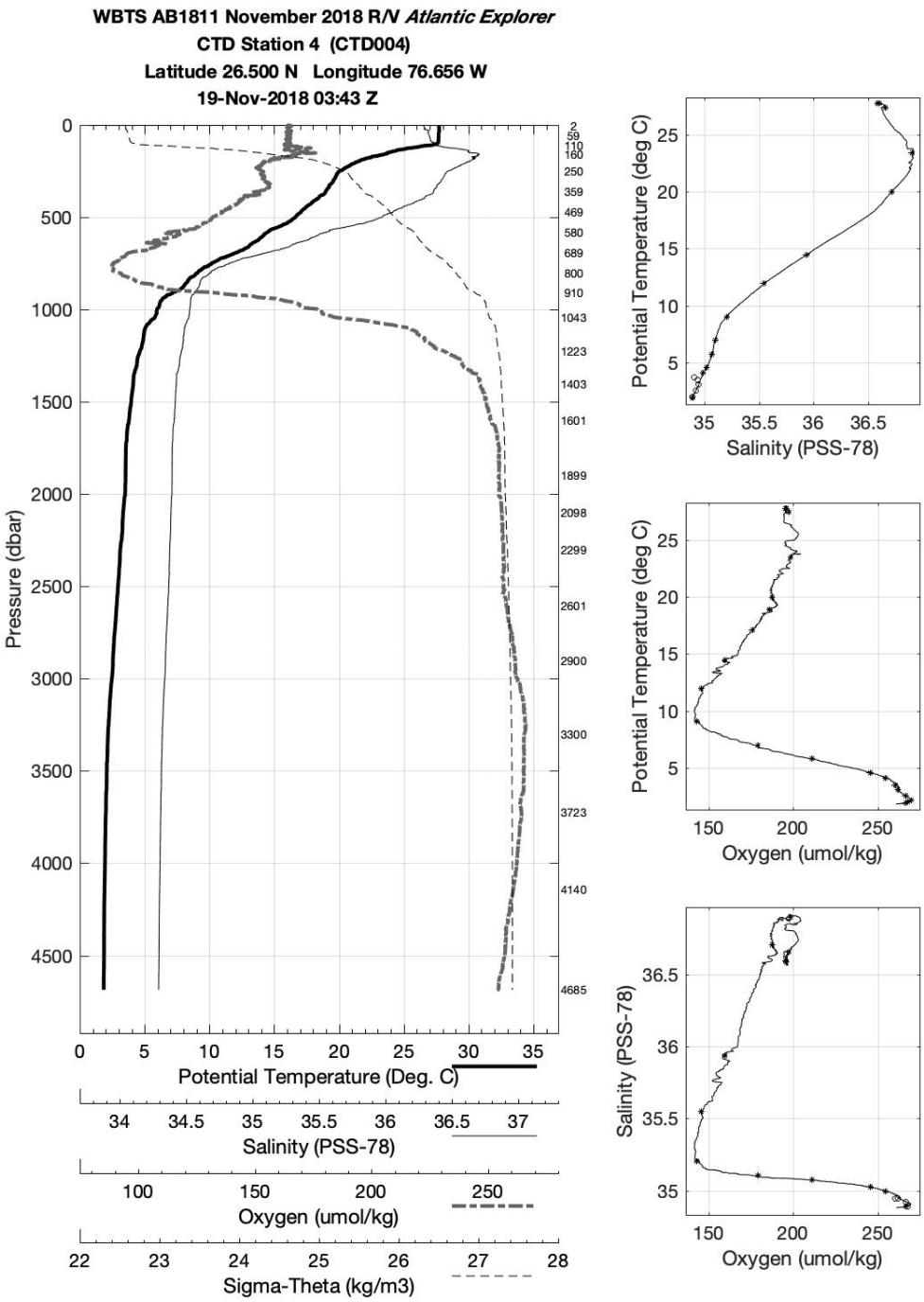
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
3933	1	2.266	1.932	34.942	262.9
3570	2	2.358	2.061	34.901	268.4
3319	3	2.531	2.258	34.915	268.5
3007	4	2.737	2.491	34.923	266.8
2704	5	3.002	2.782	34.938	−999.0
2505	6	3.087	2.885	34.941	262.6
2204	7	3.480	3.301	34.964	261.7
1904	8	3.716	3.562	34.972	260.0
1704	9	3.839	3.702	34.973	258.8
1554	10	4.023	3.898	34.990	256.7
1406	11	4.321	4.205	35.003	252.4
1254	12	4.643	4.538	35.025	246.3
1104	13	5.281	5.185	35.054	228.8
954	14	6.529	6.438	35.094	189.8
816	15	8.710	8.619	35.173	147.3
706	16	11.272	11.181	35.454	142.5
596	17	14.253	14.164	35.878	163.6
486	18	16.668	16.588	36.280	172.5
376	19	18.560	18.493	36.679	182.4
268	20	19.745	19.696	36.681	189.9
175	21	22.708	22.672	36.853	198.6
97	22	27.655	27.632	36.851	195.2
47	23	27.723	27.712	36.606	195.1
2	24	27.702	27.701	36.579	195.5


WBTS AB1811 November 2018 R/V Atlantic Explorer
CTD Station 3 (CTD003)
Latitude 26.509 N Longitude 76.747 W
18-Nov-2018 23:34 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS-78)
Oxygen (umol/kg)
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS-78)
Potential Temperature (deg C)
Oxygen (umol/kg)
Salinity (PSS-78)
Oxygen (umol/kg)

WBTS AB1811 November 2018 R/V *Atlantic Explorer*
CTD Station 4 (CTD004)
Latitude 26.500N Longitude 76.656W
19-Nov-2018 03:43Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	27.703	27.703	36.565	196.4	0.004	23.669
10	27.723	27.721	36.566	196.6	0.042	23.664
20	27.727	27.722	36.568	195.8	0.084	23.666
30	27.748	27.741	36.597	196.8	0.127	23.681
50	27.704	27.693	36.595	196.1	0.211	23.695
75	27.699	27.682	36.605	195.4	0.317	23.707
100	27.613	27.590	36.643	196.5	0.422	23.765
125	25.490	25.462	36.737	203.1	0.518	24.512
150	23.768	23.736	36.856	201.9	0.597	25.126
200	21.417	21.378	36.846	188.8	0.724	25.796
250	20.089	20.042	36.717	187.9	0.831	26.061
300	19.623	19.567	36.675	188.9	0.931	26.154
400	18.379	18.309	36.555	182.1	1.121	26.386
500	16.722	16.639	36.298	172.5	1.289	26.597
600	14.232	14.142	35.885	161.1	1.438	26.841
700	11.862	11.769	35.531	145.8	1.569	27.046
800	9.194	9.103	35.216	143.2	1.675	27.270
900	7.587	7.494	35.120	165.5	1.764	27.443
1000	6.054	5.962	35.080	205.0	1.831	27.621
1100	5.141	5.047	35.047	233.5	1.888	27.707
1200	4.882	4.781	35.034	241.5	1.940	27.728
1300	4.508	4.400	35.014	250.1	1.989	27.754
1400	4.238	4.124	34.994	255.4	2.036	27.768
1500	4.090	3.968	34.988	257.5	2.083	27.780
1750	3.687	3.548	34.968	261.5	2.196	27.807
2000	3.658	3.496	34.966	261.6	2.311	27.811
2500	3.152	2.949	34.947	263.0	2.538	27.848
3000	2.715	2.471	34.921	267.3	2.757	27.869
3500	2.372	2.083	34.900	269.2	2.966	27.885
4000	2.284	1.942	34.891	267.0	3.179	27.889
4500	2.270	1.870	34.885	263.2	3.401	27.890

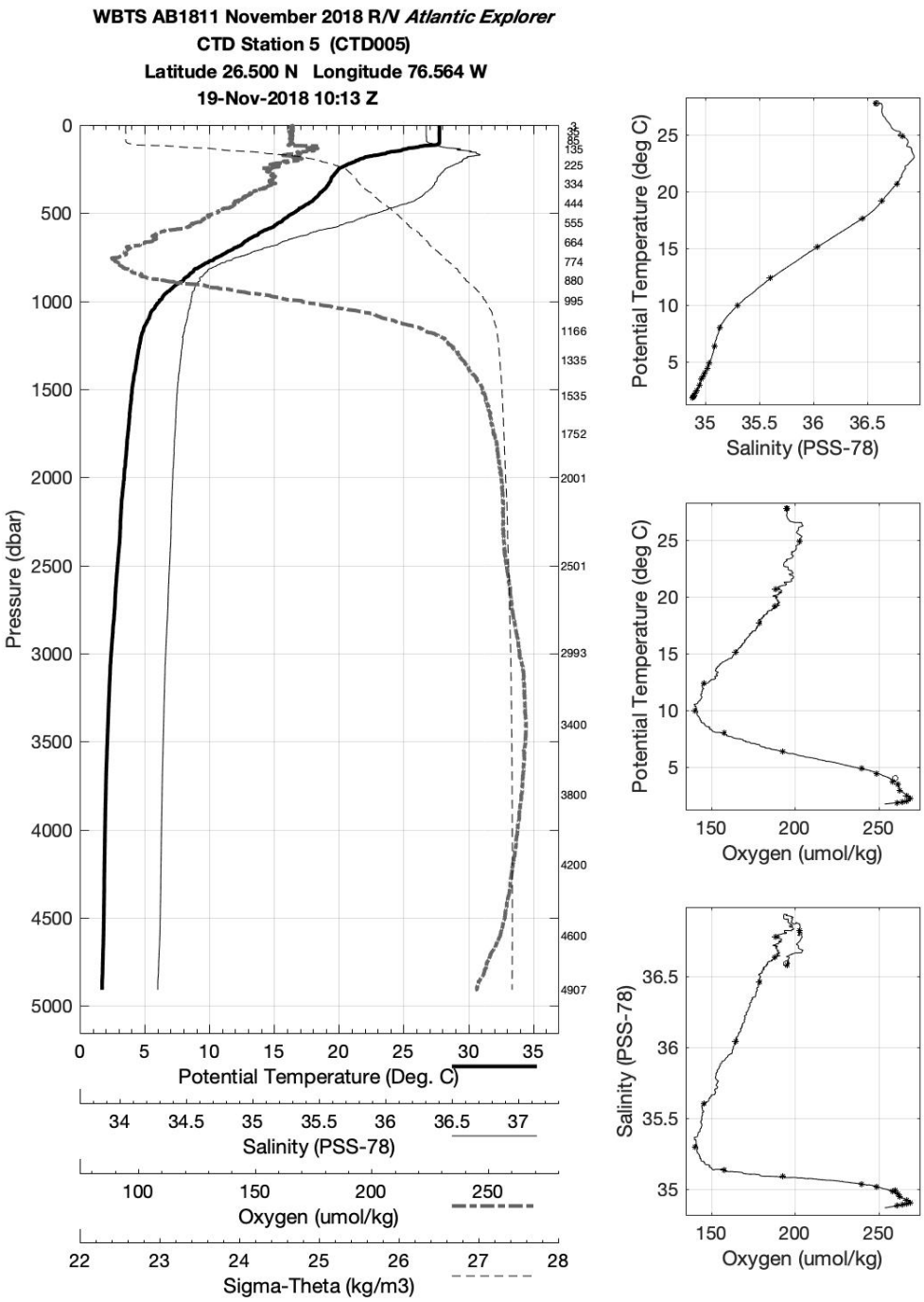
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
4685	1	2.268	8.651	−999.000	−999.0
4140	2	2.266	1.908	34.890	266.8
3724	3	2.334	2.022	34.894	267.8
3300	4	2.438	7.292	−999.000	−999.0
2901	5	2.798	2.562	34.923	266.5
2602	6	3.037	6.956	−999.000	−999.0
2300	7	3.318	3.132	34.947	262.3
2098	8	3.496	6.709	−999.000	−999.0
1900	9	3.658	3.506	34.943	260.7
1602	10	3.872	3.744	34.909	280.0
1403	11	4.216	4.102	34.994	254.9
1224	12	4.686	4.584	35.023	245.6
1043	13	5.866	5.771	35.074	211.2
910	14	7.060	6.970	35.106	178.7
800	15	9.121	9.031	35.204	142.4
690	16	12.057	11.965	35.552	145.2
580	17	14.562	14.474	35.936	159.6
470	18	17.144	17.619	−999.000	−999.0
360	19	18.868	19.203	−999.000	−999.0
250	20	20.005	19.958	36.709	187.4
160	21	23.431	23.397	36.895	198.6
110	22	27.338	27.312	36.655	197.6
60	23	27.773	27.759	36.597	195.5
3	24	27.733	27.732	36.587	195.7


WBTS AB1811 November 2018 R/V Atlantic Explorer
CTD Station 4 (CTD004)
Latitude 26.500 N Longitude 76.656 W
19-Nov-2018 03:43 Z
Pressure (dbar)
0
500
1000
1500
2000
2500
3000
3500
4000
4500
2
59
110
160
250
359
469
580
689
800
910
1043
1223
1403
1601
1899
2098
2299
2601
2900
3300
3723
4140
4685
0 5 10 15 20 25 30 35
Potential Temperature (Deg. C)
34 34.5 35 35.5 36 36.5 37
Salinity (PSS-78)
100 150 200 250
Oxygen (umol/kg)
22 23 24 25 26 27 28
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
5 10 15 20 25
35 35.5 36 36.5
Salinity (PSS-78)
Potential Temperature (deg C)
5 10 15 20 25
150 200 250
Oxygen (umol/kg)
Salinity (PSS-78)
35 35.5 36 36.5
150 200 250
Oxygen (umol/kg)

WBTS AB1811 November 2018 R/V *Atlantic Explorer*
CTD Station 5 (CTD005)
Latitude 26.500N Longitude 76.564W
19-Nov-2018 10:13Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	27.760	27.760	36.590	196.0	0.004	23.670
10	27.761	27.759	36.590	195.9	0.042	23.670
20	27.769	27.764	36.590	196.2	0.084	23.668
30	27.772	27.765	36.590	196.9	0.127	23.668
50	27.774	27.762	36.590	195.7	0.211	23.669
75	27.784	27.767	36.591	195.6	0.318	23.668
100	27.784	27.761	36.602	196.0	0.424	23.679
125	26.145	26.116	36.694	202.3	0.525	24.276
150	24.310	24.278	36.881	200.8	0.608	24.983
200	21.493	21.453	36.820	197.6	0.738	25.755
250	20.022	19.975	36.710	189.5	0.846	26.074
300	19.485	19.430	36.662	190.1	0.945	26.180
400	18.470	18.399	36.568	182.1	1.134	26.373
500	16.592	16.509	36.276	172.2	1.303	26.611
600	14.283	14.194	35.897	156.2	1.453	26.839
700	11.976	11.883	35.546	145.2	1.583	27.036
800	9.467	9.374	35.241	142.5	1.693	27.246
900	7.690	7.596	35.123	162.1	1.784	27.430
1000	6.248	6.155	35.081	199.2	1.855	27.597
1100	5.413	5.316	35.056	225.5	1.913	27.682
1200	4.841	4.740	35.029	242.7	1.966	27.728
1300	4.592	4.483	35.018	248.1	2.015	27.749
1400	4.379	4.263	35.006	251.9	2.064	27.763
1500	4.152	4.030	34.993	255.7	2.111	27.778
1750	3.860	3.718	34.978	259.5	2.228	27.798
2000	3.583	3.422	34.964	261.7	2.343	27.816
2500	3.108	2.906	34.943	263.4	2.567	27.848
3000	2.663	2.419	34.918	267.4	2.784	27.872
3500	2.416	2.125	34.903	269.3	2.996	27.884
4000	2.288	1.945	34.891	266.9	3.209	27.889
4500	2.252	1.853	34.883	262.9	3.431	27.890

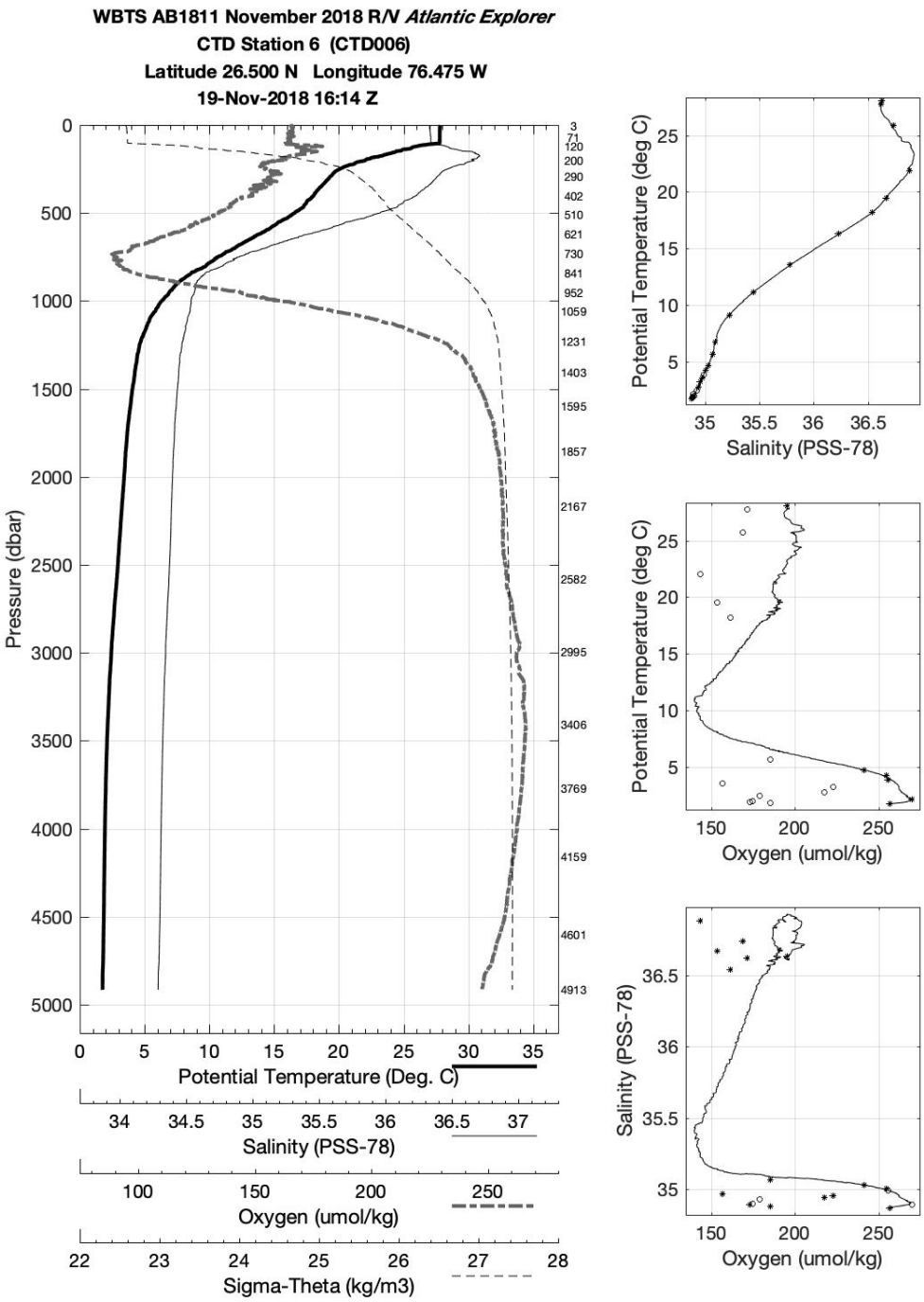
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
4907	1	2.170	8.787	−999.000	−999.0
4600	2	2.243	1.832	34.882	260.9
4200	3	2.267	1.903	34.890	264.5
3800	4	2.312	1.991	34.895	267.1
3400	5	2.444	2.164	34.905	269.2
2994	6	2.664	2.421	34.921	267.0
2501	7	3.123	2.921	34.944	262.7
2001	8	3.576	3.414	34.963	261.4
1752	9	3.845	3.703	34.980	258.2
1536	10	4.102	3.978	34.990	260.1
1335	11	4.515	4.404	35.015	249.0
1166	12	4.926	4.827	35.035	240.0
996	13	6.430	6.335	35.088	192.6
881	14	8.042	7.949	35.136	157.6
775	15	10.040	9.947	35.295	140.2
665	16	12.416	12.325	35.605	145.5
555	17	15.206	15.119	36.040	164.2
445	18	17.709	17.633	36.459	178.8
335	19	19.199	19.139	36.637	187.6
226	20	20.687	20.643	36.774	188.4
136	21	24.923	24.893	36.824	202.6
86	22	27.769	27.749	36.592	195.0
36	23	27.763	27.754	36.579	195.2
3	24	27.772	27.771	36.578	195.2


WBTS AB1811 November 2018 R/V Atlantic Explorer
CTD Station 5 (CTD005)
Latitude 26.500 N Longitude 76.564 W
19-Nov-2018 10:13 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS-78)
Oxygen (umol/kg)
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS-78)
Potential Temperature (deg C)
Oxygen (umol/kg)
Salinity (PSS-78)
Oxygen (umol/kg)

WBTS AB1811 November 2018 R/V *Atlantic Explorer*
CTD Station 6 (CTD006)
Latitude 26.500N Longitude 76.475W
19-Nov-2018 16:14Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	27.830	27.830	36.608	196.0	0.004	23.660
10	27.803	27.800	36.606	196.3	0.042	23.669
20	27.794	27.789	36.607	196.5	0.084	23.672
30	27.797	27.790	36.608	195.9	0.127	23.674
50	27.796	27.784	36.611	196.4	0.211	23.677
75	27.801	27.784	36.614	195.4	0.317	23.680
100	27.804	27.780	36.614	194.9	0.423	23.681
125	25.754	25.726	36.727	198.1	0.521	24.422
150	24.432	24.400	36.863	204.0	0.605	24.933
200	22.092	22.052	36.885	193.5	0.741	25.636
250	20.120	20.073	36.722	187.5	0.851	26.056
300	19.314	19.259	36.649	188.9	0.949	26.215
400	18.135	18.065	36.522	183.5	1.131	26.422
500	16.679	16.597	36.289	173.1	1.299	26.601
600	14.435	14.344	35.913	161.9	1.450	26.819
700	12.041	11.947	35.555	146.8	1.581	27.030
800	9.832	9.737	35.283	142.5	1.692	27.218
900	7.625	7.532	35.115	161.6	1.782	27.433
1000	6.425	6.330	35.081	192.9	1.855	27.574
1100	5.506	5.409	35.060	220.8	1.916	27.674
1200	4.971	4.869	35.037	238.3	1.970	27.720
1300	4.567	4.459	35.013	248.3	2.020	27.747
1400	4.373	4.258	35.004	252.6	2.069	27.762
1500	4.186	4.064	34.995	255.1	2.117	27.776
1750	3.799	3.658	34.976	259.7	2.233	27.802
2000	3.579	3.418	34.964	261.6	2.347	27.816
2500	3.140	2.937	34.945	263.0	2.572	27.847
3000	2.673	2.429	34.920	266.3	2.789	27.872
3500	2.391	2.101	34.901	268.9	3.000	27.884
4000	2.281	1.939	34.891	266.6	3.213	27.889
4500	2.251	1.852	34.883	262.6	3.435	27.890

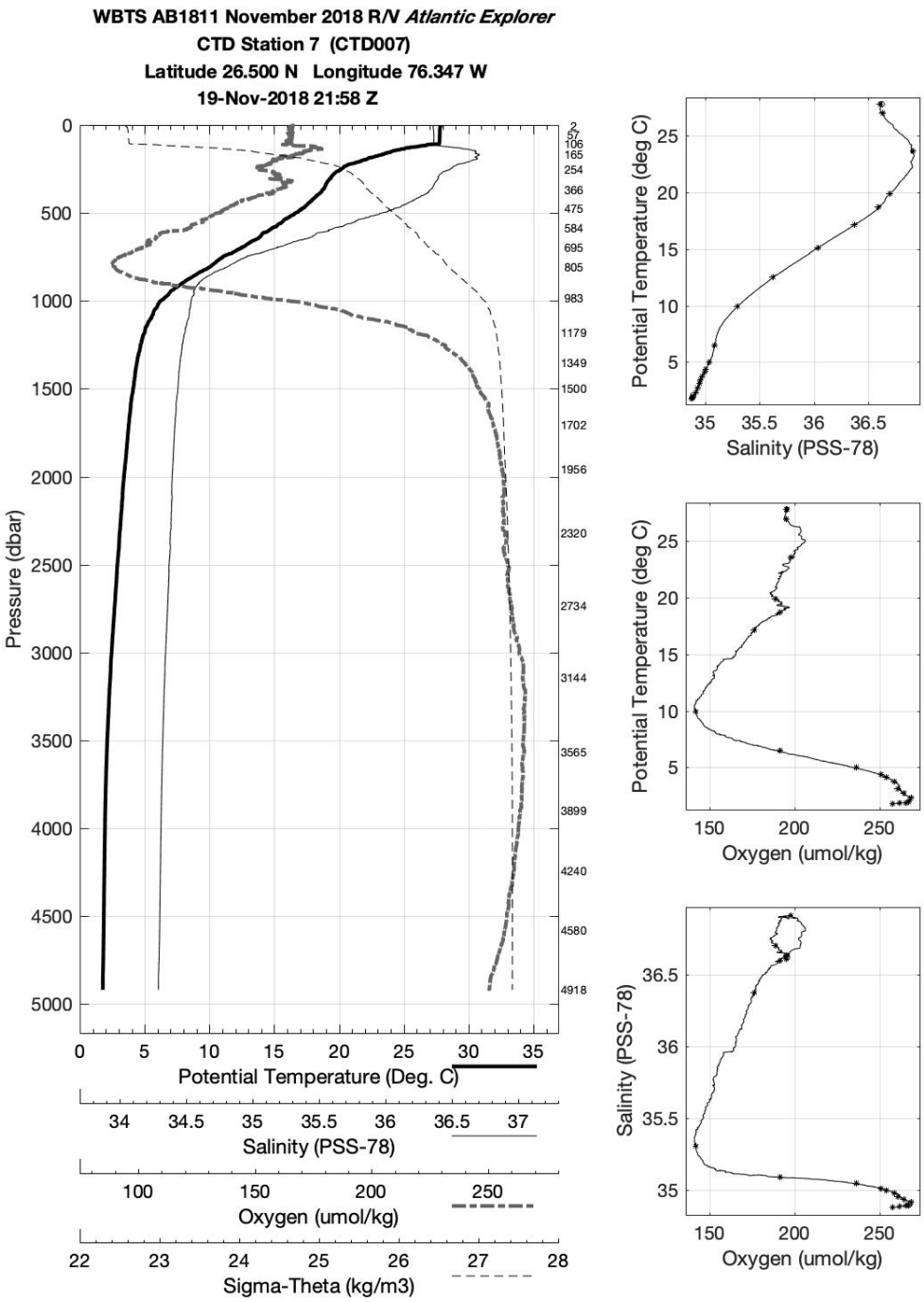
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
4913	1	2.205	1.757	34.871	256.9
4601	2	2.242	1.830	34.881	185.3
4160	3	2.267	1.907	34.891	173.0
3770	4	2.319	2.002	34.901	174.7
3407	5	2.438	2.157	34.894	270.0
2995	6	2.676	2.433	34.927	178.8
2582	7	3.026	2.818	34.941	217.5
2168	8	3.392	3.218	34.955	222.9
1857	9	3.685	3.536	34.971	156.4
1595	10	4.045	3.916	34.992	255.7
1404	11	4.348	4.233	35.003	254.5
1231	12	4.802	4.698	35.027	241.1
1059	13	5.744	5.648	35.069	185.3
952	14	6.884	6.790	35.095	124.3
842	15	9.226	9.129	35.223	99.4
731	16	11.282	11.188	35.446	100.0
622	17	13.632	13.542	35.779	106.0
510	18	16.393	16.309	36.232	116.2
402	19	18.295	18.224	36.541	161.3
290	20	19.541	19.488	36.667	153.7
201	21	21.947	21.907	36.883	143.7
121	22	25.868	25.841	36.736	169.0
71	23	27.796	27.779	36.620	171.6
3	24	28.054	28.053	36.633	195.2


WBTS AB1811 November 2018 R/V Atlantic Explorer
CTD Station 6 (CTD006)
Latitude 26.500 N Longitude 76.475 W
19-Nov-2018 16:14 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS-78)
Oxygen (umol/kg)
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS-78)
Potential Temperature (deg C)
Oxygen (umol/kg)
Salinity (PSS-78)
Oxygen (umol/kg)

WBTS AB1811 November 2018 R/V *Atlantic Explorer*
CTD Station 7 (CTD007)
Latitude 26.500N Longitude 76.347W
19-Nov-2018 21:58Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	27.858	27.858	36.627	196.6	0.004	23.665
10	27.822	27.819	36.623	196.3	0.042	23.675
20	27.801	27.796	36.625	196.5	0.084	23.684
30	27.794	27.787	36.626	196.5	0.126	23.688
50	27.791	27.779	36.628	195.7	0.211	23.692
75	27.788	27.771	36.629	196.3	0.316	23.695
100	27.779	27.756	36.628	195.2	0.422	23.699
125	25.805	25.777	36.729	203.7	0.521	24.408
150	24.100	24.068	36.892	200.2	0.602	25.054
200	21.893	21.853	36.874	190.6	0.734	25.684
250	20.246	20.199	36.733	187.1	0.844	26.031
300	19.429	19.374	36.657	190.2	0.944	26.192
400	18.402	18.332	36.559	185.8	1.130	26.384
500	16.748	16.665	36.299	173.9	1.300	26.592
600	14.686	14.595	35.962	162.5	1.453	26.803
700	12.520	12.423	35.620	150.1	1.587	26.988
800	10.260	10.162	35.327	141.4	1.702	27.179
900	7.986	7.890	35.134	155.7	1.798	27.396
1000	6.364	6.270	35.084	195.2	1.873	27.584
1100	5.608	5.509	35.068	218.6	1.933	27.668
1200	4.973	4.870	35.037	238.3	1.987	27.720
1300	4.655	4.547	35.021	246.1	2.037	27.744
1400	4.405	4.289	35.007	251.6	2.086	27.761
1500	4.238	4.115	34.999	254.1	2.135	27.773
1750	3.857	3.715	34.977	259.1	2.252	27.797
2000	3.565	3.404	34.963	261.5	2.367	27.817
2500	3.103	2.901	34.943	262.9	2.591	27.849
3000	2.699	2.454	34.921	266.4	2.808	27.871
3500	2.402	2.113	34.902	267.7	3.020	27.884
4000	2.283	1.941	34.891	266.2	3.233	27.889
4500	2.253	1.853	34.884	262.6	3.455	27.890

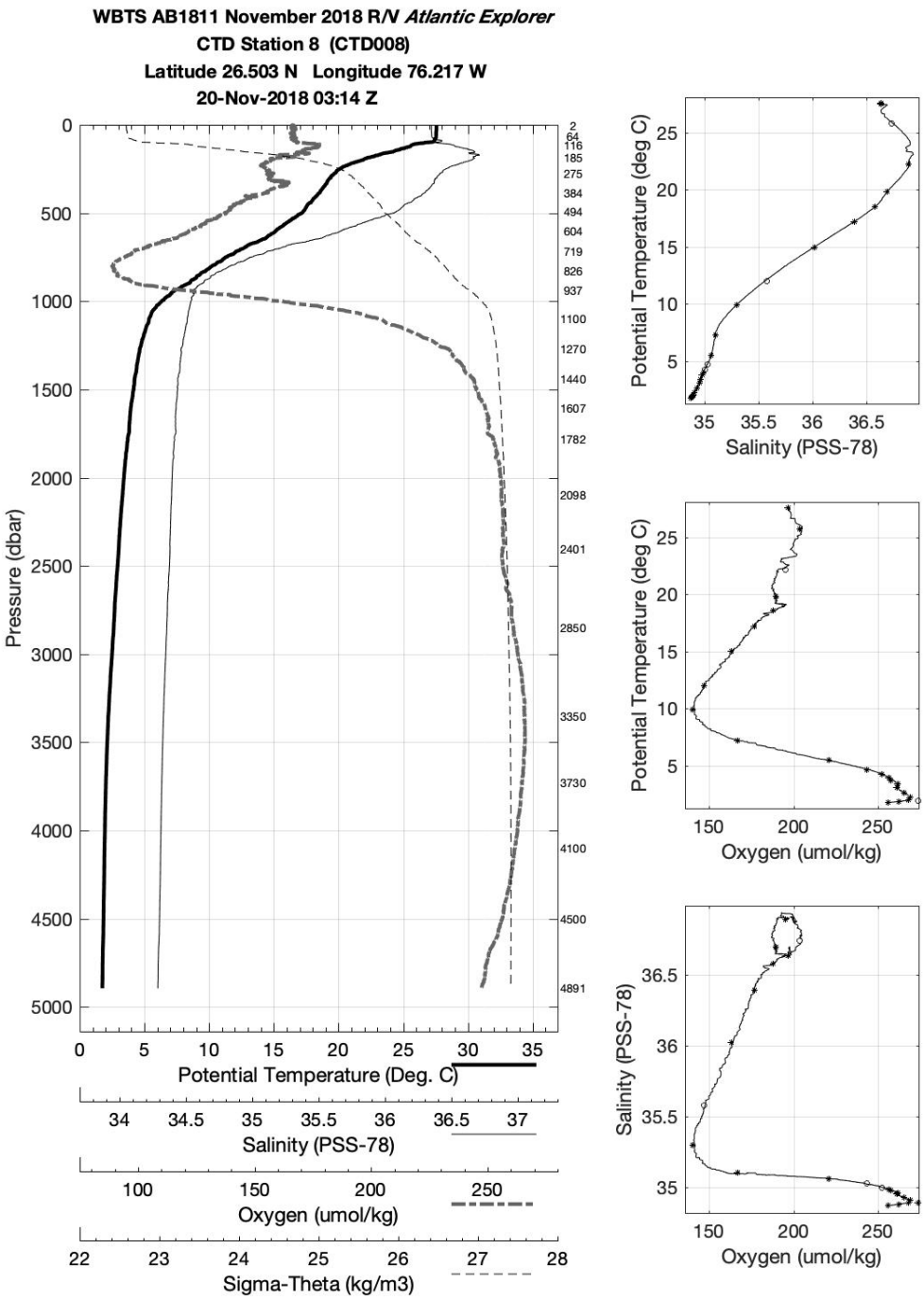
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
4918	1	2.229	1.779	34.876	257.8
4580	2	2.253	1.844	34.885	262.0
4241	3	2.265	1.896	34.889	265.2
3899	4	2.298	1.967	34.892	266.8
3566	5	2.384	2.088	34.897	267.6
3145	6	2.596	2.340	34.915	268.4
2735	7	2.913	2.692	34.934	264.3
2320	8	3.292	3.104	34.954	260.7
1956	9	3.610	3.452	34.962	−999.0
1703	10	3.912	3.774	34.978	258.6
1500	11	4.225	4.102	34.996	253.9
1349	12	4.467	4.355	35.010	251.0
1180	13	5.065	4.963	35.041	236.3
983	14	6.564	6.470	35.088	191.5
805	15	10.028	9.932	35.302	141.9
695	16	12.575	12.479	35.628	−999.0
584	17	15.213	15.122	36.036	−999.0
475	18	17.234	17.154	36.374	176.2
367	19	18.737	18.672	36.594	191.2
254	20	19.942	19.895	36.698	188.5
166	21	23.674	23.639	36.911	197.9
107	22	27.037	27.012	36.631	194.9
57	23	27.772	27.758	36.608	194.9
3	24	27.761	27.761	36.621	195.6


WBTS AB1811 November 2018 R/V Atlantic Explorer
CTD Station 7 (CTD007)
Latitude 26.500 N Longitude 76.347 W
19-Nov-2018 21:58 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS-78)
Oxygen (umol/kg)
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS-78)
Potential Temperature (deg C)
Oxygen (umol/kg)
Salinity (PSS-78)
Oxygen (umol/kg)

WBTS AB1811 November 2018 R/V *Atlantic Explorer*
CTD Station 8 (CTD008)
Latitude 26.503N Longitude 76.217W
20-Nov-2018 03:14Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	27.571	27.570	36.625	196.8	0.004	23.758
10	27.579	27.577	36.624	197.6	0.041	23.755
20	27.577	27.572	36.624	196.4	0.083	23.757
30	27.573	27.566	36.625	197.6	0.124	23.759
50	27.558	27.546	36.626	196.9	0.207	23.766
75	27.541	27.524	36.633	197.9	0.311	23.779
100	26.721	26.698	36.640	198.3	0.413	24.050
125	25.428	25.401	36.794	204.5	0.503	24.574
150	24.313	24.281	36.899	199.8	0.582	24.995
200	21.855	21.815	36.879	190.0	0.714	25.698
250	20.135	20.088	36.717	188.4	0.824	26.049
300	19.458	19.403	36.661	189.6	0.923	26.187
400	18.402	18.331	36.560	183.2	1.109	26.384
500	17.252	17.167	36.382	176.1	1.281	26.535
600	15.261	15.167	36.048	164.5	1.439	26.743
700	12.751	12.653	35.654	150.7	1.578	26.969
800	10.334	10.237	35.336	140.8	1.695	27.173
900	8.486	8.387	35.155	148.2	1.794	27.336
1000	6.422	6.327	35.084	193.7	1.871	27.576
1100	5.455	5.358	35.060	223.9	1.931	27.681
1200	5.036	4.933	35.040	236.7	1.985	27.715
1300	4.678	4.569	35.021	246.4	2.036	27.742
1400	4.477	4.361	35.011	250.3	2.085	27.756
1500	4.286	4.162	34.998	253.7	2.134	27.768
1750	3.929	3.786	34.985	257.3	2.252	27.796
2000	3.576	3.415	34.963	261.4	2.368	27.816
2500	3.130	2.927	34.946	262.0	2.592	27.849
3000	2.742	2.497	34.922	266.6	2.810	27.868
3500	2.412	2.122	34.903	268.9	3.024	27.884
4000	2.286	1.944	34.891	266.6	3.237	27.889
4500	2.239	1.840	34.882	261.8	3.459	27.890

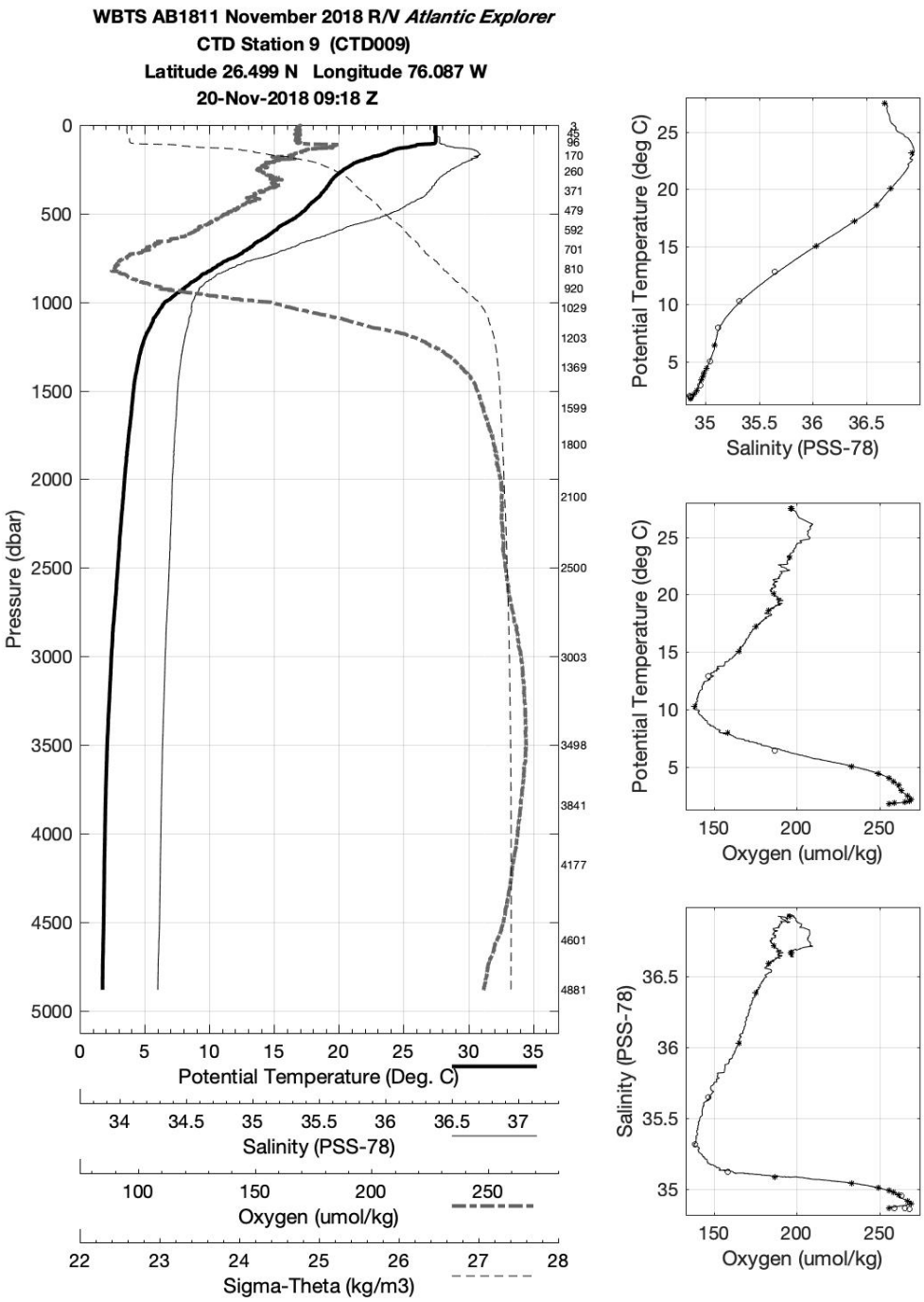
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
4892	1	2.196	1.751	34.872	255.8
4501	2	2.236	1.837	34.883	262.2
4100	3	2.271	1.918	34.891	273.7
3731	4	2.321	2.008	34.895	268.1
3350	5	2.479	2.203	34.908	269.3
2851	6	2.856	2.624	34.930	265.5
2401	7	3.253	3.058	34.954	261.2
2099	8	3.517	3.347	34.962	261.6
1782	9	3.882	3.737	34.983	257.8
1608	10	4.078	3.947	34.989	256.2
1441	11	4.358	4.239	35.002	252.3
1271	12	4.792	4.685	35.030	243.2
1101	13	5.538	5.440	35.064	220.9
937	14	7.350	7.255	35.102	166.7
826	15	9.969	9.870	35.296	140.3
720	16	12.121	12.024	35.578	147.1
604	17	15.058	14.964	36.018	163.4
494	18	17.242	17.159	36.388	176.6
385	19	18.581	18.513	36.578	187.9
276	20	19.842	19.791	36.694	189.1
185	21	22.262	22.224	36.887	195.1
117	22	25.799	25.772	36.735	203.6
65	23	27.552	27.537	36.634	196.9
3	24	27.525	27.525	36.631	196.7


WBTS AB1811 November 2018 R/V Atlantic Explorer
CTD Station 8 (CTD008)
Latitude 26.503 N Longitude 76.217 W
20-Nov-2018 03:14 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS-78)
Oxygen (umol/kg)
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS-78)
Oxygen (umol/kg)

WBTS AB1811 November 2018 R/V *Atlantic Explorer*
CTD Station 9 (CTD009)
Latitude 26.499N Longitude 76.087W
20-Nov-2018 09:18Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	27.470	27.470	36.641	197.2	0.004	23.802
10	27.478	27.475	36.641	197.1	0.041	23.801
20	27.486	27.482	36.641	197.1	0.082	23.799
30	27.485	27.478	36.640	197.1	0.123	23.800
50	27.494	27.483	36.645	197.1	0.205	23.801
75	27.503	27.486	36.679	196.8	0.308	23.826
100	27.469	27.446	36.678	197.1	0.411	23.838
125	25.449	25.421	36.768	207.0	0.504	24.548
150	23.856	23.824	36.923	197.7	0.581	25.151
200	21.802	21.762	36.874	190.3	0.712	25.710
250	20.445	20.398	36.756	183.9	0.823	25.995
300	19.634	19.579	36.677	188.0	0.924	26.153
400	18.620	18.548	36.585	183.3	1.114	26.348
500	17.144	17.059	36.362	174.4	1.287	26.546
600	15.057	14.964	36.016	164.3	1.444	26.763
700	13.073	12.974	35.703	148.3	1.583	26.943
800	10.650	10.550	35.369	139.0	1.704	27.144
900	8.538	8.439	35.168	149.9	1.804	27.338
1000	6.657	6.560	35.094	188.0	1.885	27.553
1100	5.765	5.666	35.071	211.9	1.949	27.651
1200	5.126	5.022	35.045	233.8	2.005	27.708
1300	4.724	4.615	35.024	244.3	2.056	27.738
1400	4.469	4.353	35.010	250.4	2.106	27.756
1500	4.268	4.144	34.999	253.5	2.154	27.770
1750	3.922	3.779	34.981	258.4	2.274	27.794
2000	3.619	3.457	34.965	260.9	2.390	27.814
2500	3.135	2.932	34.945	262.5	2.615	27.848
3000	2.675	2.432	34.919	267.3	2.833	27.871
3500	2.404	2.114	34.902	269.0	3.045	27.884
4000	2.281	1.939	34.891	266.3	3.258	27.890
4500	2.242	1.842	34.883	261.9	3.479	27.890

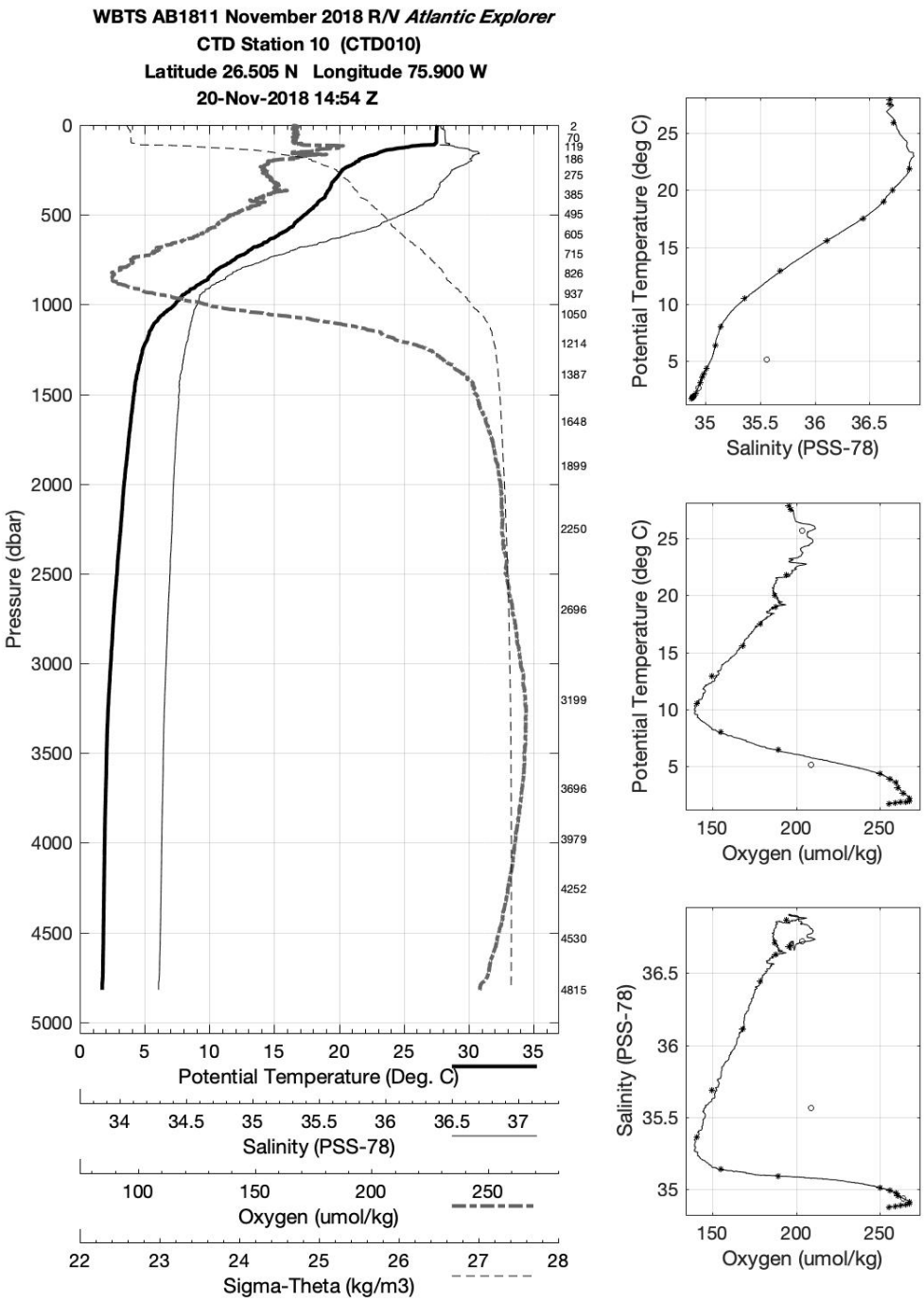
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
4881	1	2.197	1.752	34.870	256.0
4602	2	2.223	1.812	34.869	259.0
4178	3	2.258	1.896	34.870	265.2
3842	4	2.306	1.981	34.859	268.0
3499	5	2.404	2.114	34.902	269.3
3003	6	2.670	2.426	34.921	267.0
2501	7	3.099	2.897	34.954	263.1
2100	8	3.513	3.343	34.962	261.5
1800	9	3.847	3.701	34.979	258.4
1599	10	4.140	4.009	34.993	255.6
1369	11	4.524	4.410	35.014	249.5
1204	12	5.106	5.002	35.046	233.4
1029	13	6.491	6.393	35.090	186.7
920	14	8.026	7.928	35.124	158.2
810	15	10.343	10.244	35.315	138.6
701	16	12.940	12.842	35.650	146.2
593	17	15.142	15.050	36.029	165.2
480	18	17.280	17.199	36.387	175.5
371	19	18.690	18.624	36.590	183.0
260	20	20.121	20.072	36.720	186.3
171	21	23.205	23.169	36.923	195.5
96	22	27.475	27.452	36.669	196.7
45	23	27.467	27.456	36.666	197.0
4	24	27.460	27.459	36.667	196.5


WBTS AB1811 November 2018 R/V Atlantic Explorer
CTD Station 9 (CTD009)
Latitude 26.499 N Longitude 76.087 W
20-Nov-2018 09:18 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS-78)
Oxygen (umol/kg)
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS-78)
Potential Temperature (deg C)
Oxygen (umol/kg)
Salinity (PSS-78)
Oxygen (umol/kg)

WBTS AB1811 November 2018 R/V *Atlantic Explorer*
CTD Station 10 (CTD010)
Latitude 26.505N Longitude 75.900W
20-Nov-2018 14:54Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	27.593	27.593	36.665	196.3	0.004	23.780
10	27.563	27.560	36.663	197.5	0.041	23.790
20	27.553	27.548	36.670	196.5	0.082	23.799
30	27.539	27.532	36.689	196.6	0.123	23.818
50	27.531	27.519	36.690	197.0	0.205	23.823
75	27.532	27.514	36.691	196.0	0.307	23.826
100	27.524	27.500	36.697	196.2	0.410	23.835
125	25.100	25.073	36.770	207.4	0.504	24.657
150	23.237	23.206	36.902	196.9	0.578	25.317
200	21.581	21.542	36.859	189.1	0.702	25.760
250	20.274	20.227	36.734	186.1	0.811	26.025
300	19.794	19.738	36.689	188.9	0.913	26.120
400	18.988	18.916	36.618	186.4	1.107	26.280
500	17.412	17.327	36.410	177.4	1.286	26.518
600	15.702	15.607	36.121	167.7	1.448	26.700
700	13.112	13.013	35.710	153.4	1.590	26.940
800	10.824	10.724	35.395	140.8	1.712	27.133
900	9.050	8.948	35.202	143.9	1.818	27.285
1000	7.428	7.326	35.115	168.6	1.905	27.463
1100	5.931	5.830	35.076	207.9	1.974	27.635
1200	5.278	5.173	35.054	228.6	2.031	27.698
1300	4.807	4.697	35.028	242.4	2.084	27.732
1400	4.491	4.374	35.007	250.6	2.134	27.751
1500	4.297	4.173	34.999	253.4	2.183	27.767
1750	3.914	3.771	34.980	258.3	2.302	27.794
2000	3.575	3.414	34.964	261.2	2.418	27.817
2500	3.073	2.872	34.943	262.6	2.641	27.851
3000	2.632	2.389	34.918	267.5	2.855	27.874
3500	2.356	2.068	34.900	268.4	3.062	27.886
4000	2.257	1.916	34.890	265.7	3.274	27.890
4500	2.221	1.822	34.881	260.5	3.494	27.890

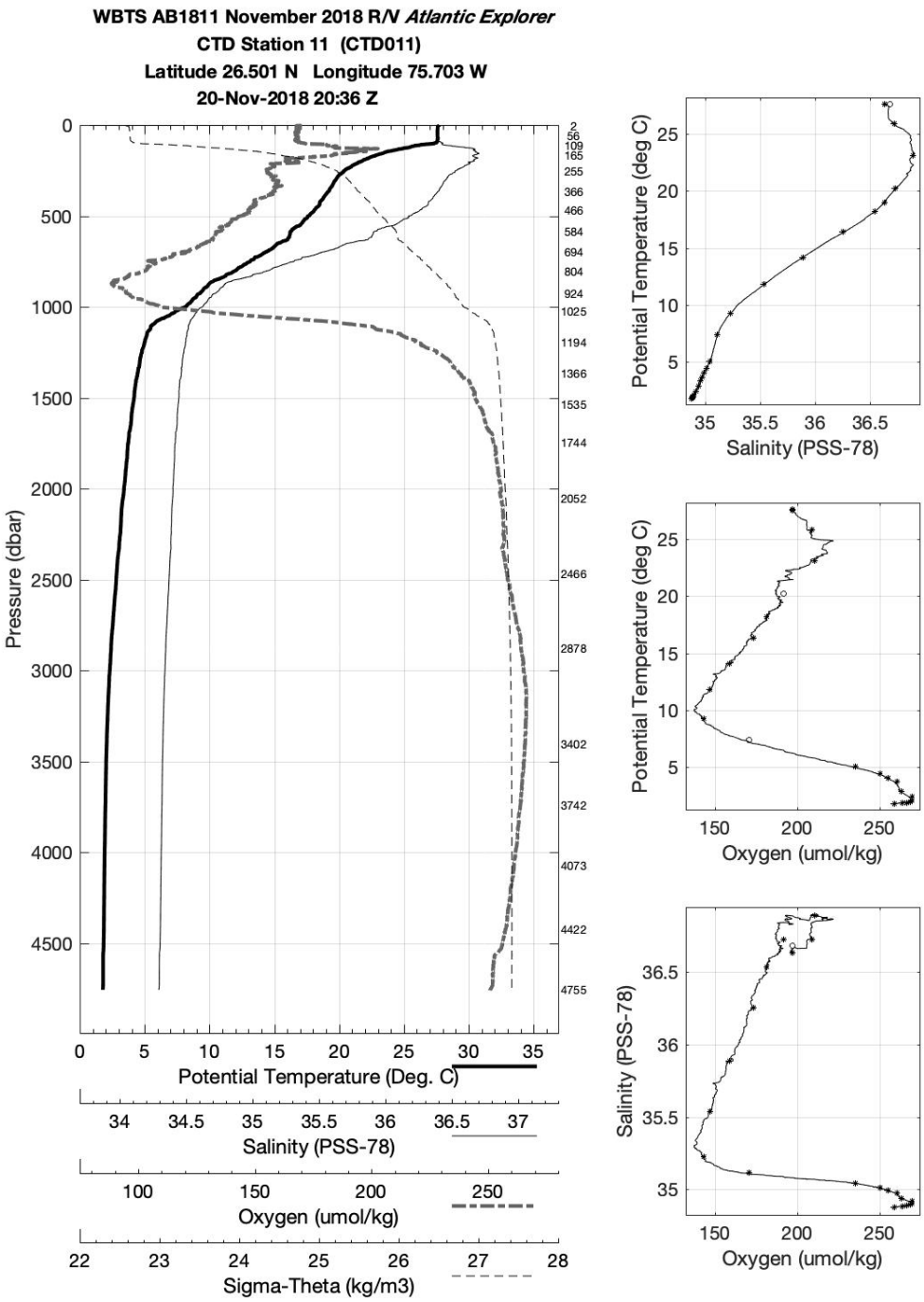
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
4816	1	2.168	1.733	34.871	255.7
4531	2	2.218	1.816	34.880	259.4
4252	3	2.233	1.863	34.884	262.9
3979	4	2.259	1.919	34.891	265.7
3697	5	2.312	2.002	34.895	268.0
3200	6	2.497	2.236	34.909	267.9
2697	7	2.878	2.661	34.936	264.3
2250	8	3.302	3.121	34.954	261.1
1900	9	3.744	3.590	34.969	259.8
1649	10	4.074	3.939	34.988	256.2
1388	11	4.481	4.366	35.006	250.3
1215	12	5.240	5.133	35.560	209.2
1050	13	6.521	6.420	35.089	189.6
937	14	8.108	8.008	35.137	154.7
826	15	10.593	10.490	35.360	140.4
715	16	12.987	12.886	35.683	149.4
606	17	15.643	15.547	36.110	168.2
496	18	17.619	17.534	36.443	178.9
385	19	19.053	18.983	36.627	187.9
276	20	20.012	19.960	36.709	187.3
186	21	21.879	21.842	36.867	193.9
120	22	25.875	25.848	36.721	203.8
70	23	27.537	27.521	36.688	196.7
3	24	27.863	27.862	36.686	195.6


WBTS AB1811 November 2018 R/V Atlantic Explorer
CTD Station 10 (CTD010)
Latitude 26.505 N Longitude 75.900 W
20-Nov-2018 14:54 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS-78)
Oxygen (umol/kg)
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS-78)
Potential Temperature (deg C)
Oxygen (umol/kg)
Salinity (PSS-78)
Oxygen (umol/kg)

WBTS AB1811 November 2018 R/V *Atlantic Explorer*
CTD Station 11 (CTD011)
Latitude 26.501N Longitude 75.703W
20-Nov-2018 20:36Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	27.709	27.709	36.637	197.2	0.004	23.722
10	27.617	27.615	36.633	197.3	0.042	23.749
20	27.606	27.601	36.635	197.4	0.083	23.755
30	27.596	27.589	36.633	196.5	0.124	23.758
50	27.601	27.590	36.636	196.4	0.207	23.760
75	27.617	27.599	36.647	196.5	0.311	23.765
100	27.369	27.346	36.670	198.7	0.415	23.865
125	25.273	25.246	36.823	208.7	0.507	24.644
150	23.587	23.556	36.883	214.3	0.583	25.200
200	21.746	21.706	36.857	192.8	0.711	25.713
250	20.476	20.429	36.755	187.4	0.822	25.986
300	19.809	19.754	36.690	188.8	0.924	26.117
400	18.877	18.805	36.608	185.4	1.118	26.301
500	17.695	17.609	36.453	178.6	1.299	26.482
600	16.315	16.217	36.229	170.6	1.464	26.644
700	14.393	14.287	35.905	159.8	1.617	26.825
800	12.143	12.034	35.570	148.3	1.751	27.025
900	9.675	9.568	35.260	140.9	1.864	27.228
1000	8.248	8.140	35.148	153.2	1.961	27.369
1100	5.699	5.600	35.065	215.9	2.033	27.654
1200	5.077	4.974	35.043	235.5	2.088	27.712
1300	4.736	4.626	35.023	244.9	2.140	27.737
1400	4.466	4.350	35.008	250.0	2.189	27.755
1500	4.309	4.185	35.001	252.8	2.238	27.768
1750	3.873	3.731	34.978	258.8	2.357	27.797
2000	3.570	3.409	34.964	261.1	2.472	27.818
2500	3.008	2.808	34.939	263.3	2.693	27.854
3000	2.554	2.313	34.913	268.3	2.903	27.877
3500	2.320	2.032	34.898	268.5	3.107	27.887
4000	2.257	1.915	34.890	265.7	3.318	27.890
4500	2.236	1.837	34.882	261.6	3.539	27.890

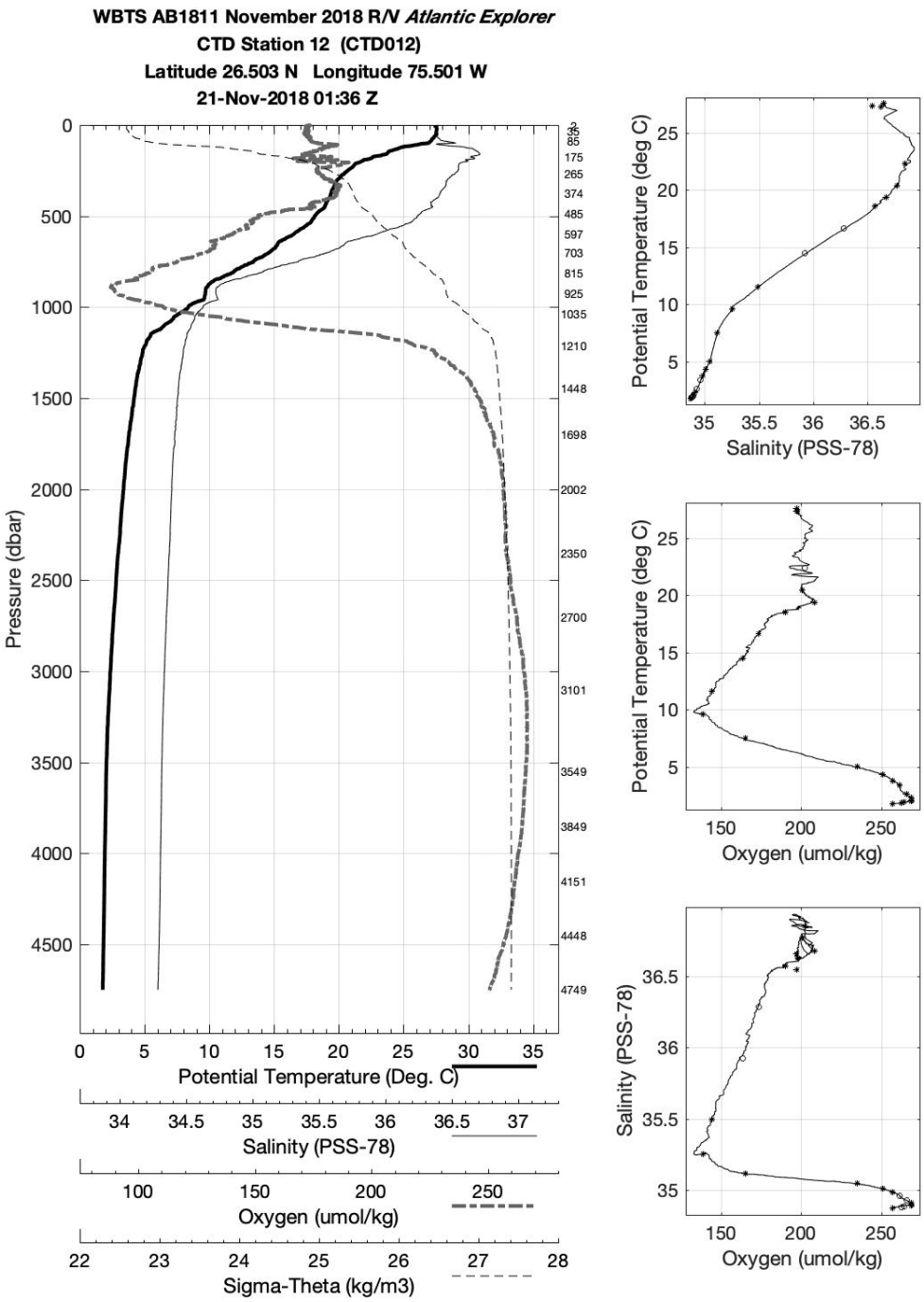
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
4756	1	2.209	1.779	34.876	259.0
4423	2	2.244	1.854	34.883	263.8
4073	3	2.253	1.903	34.888	266.7
3742	4	2.291	1.978	34.893	268.7
3402	5	2.351	2.073	34.901	269.7
2878	6	2.654	2.423	34.918	269.7
2467	7	3.039	2.842	34.941	263.6
2053	8	3.487	3.322	34.961	283.5
1745	9	3.828	3.688	34.975	260.8
1536	10	4.192	4.067	34.993	255.3
1366	11	4.557	4.443	35.014	250.4
1195	12	5.122	5.019	35.044	235.4
1025	13	7.477	7.371	35.113	170.6
924	14	9.359	9.251	35.229	143.2
805	15	11.947	11.839	35.540	147.3
695	16	14.229	14.125	35.888	159.0
585	17	16.484	16.388	36.257	173.3
467	18	18.287	18.204	36.539	181.8
366	19	19.076	19.010	36.629	−999.0
256	20	20.258	20.210	36.728	191.7
165	21	23.169	23.134	36.889	210.7
110	22	25.904	25.879	36.723	209.1
57	23	27.634	27.620	36.682	197.1
3	24	27.627	27.626	36.635	197.1


WBTS AB1811 November 2018 R/V Atlantic Explorer
CTD Station 11 (CTD011)
Latitude 26.501 N Longitude 75.703 W
20-Nov-2018 20:36 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS-78)
Oxygen (umol/kg)
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS-78)
Potential Temperature (deg C)
Oxygen (umol/kg)
Salinity (PSS-78)
Oxygen (umol/kg)

WBTS AB1811 November 2018 R/V *Atlantic Explorer*
CTD Station 12 (CTD012)
Latitude 26.503N Longitude 75.501W
21-Nov-2018 01:36Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	27.522	27.522	36.643	197.3	0.004	23.787
10	27.539	27.537	36.641	195.9	0.041	23.781
20	27.568	27.564	36.653	197.3	0.082	23.781
30	27.551	27.544	36.663	197.6	0.123	23.795
50	27.521	27.509	36.667	196.1	0.206	23.809
75	27.238	27.220	36.674	197.6	0.308	23.908
100	26.920	26.897	36.768	199.4	0.406	24.083
125	24.780	24.753	36.854	202.6	0.494	24.819
150	23.821	23.789	36.926	197.7	0.569	25.163
200	21.778	21.738	36.851	195.5	0.699	25.699
250	20.728	20.680	36.795	200.4	0.812	25.949
300	19.955	19.899	36.729	204.5	0.916	26.108
400	19.358	19.285	36.663	205.3	1.113	26.219
500	18.221	18.133	36.535	181.5	1.302	26.415
600	16.599	16.499	36.273	172.5	1.474	26.611
700	14.728	14.621	35.962	164.0	1.627	26.798
800	12.067	11.959	35.554	146.4	1.763	27.027
900	9.837	9.729	35.246	133.6	1.877	27.190
1000	8.498	8.388	35.164	149.9	1.979	27.343
1100	6.621	6.515	35.087	188.0	2.061	27.554
1200	5.226	5.121	35.048	231.0	2.121	27.700
1300	4.793	4.683	35.028	243.2	2.173	27.734
1400	4.511	4.394	35.010	249.8	2.223	27.752
1500	4.309	4.186	35.000	253.2	2.272	27.766
1750	3.871	3.729	34.983	258.1	2.391	27.800
2000	3.538	3.377	34.964	261.0	2.505	27.820
2500	3.008	2.808	34.939	263.4	2.725	27.854
3000	2.609	2.367	34.916	267.8	2.936	27.874
3500	2.346	2.058	34.899	268.7	3.144	27.886
4000	2.271	1.929	34.891	266.0	3.355	27.890
4500	2.230	1.831	34.882	261.3	3.576	27.890

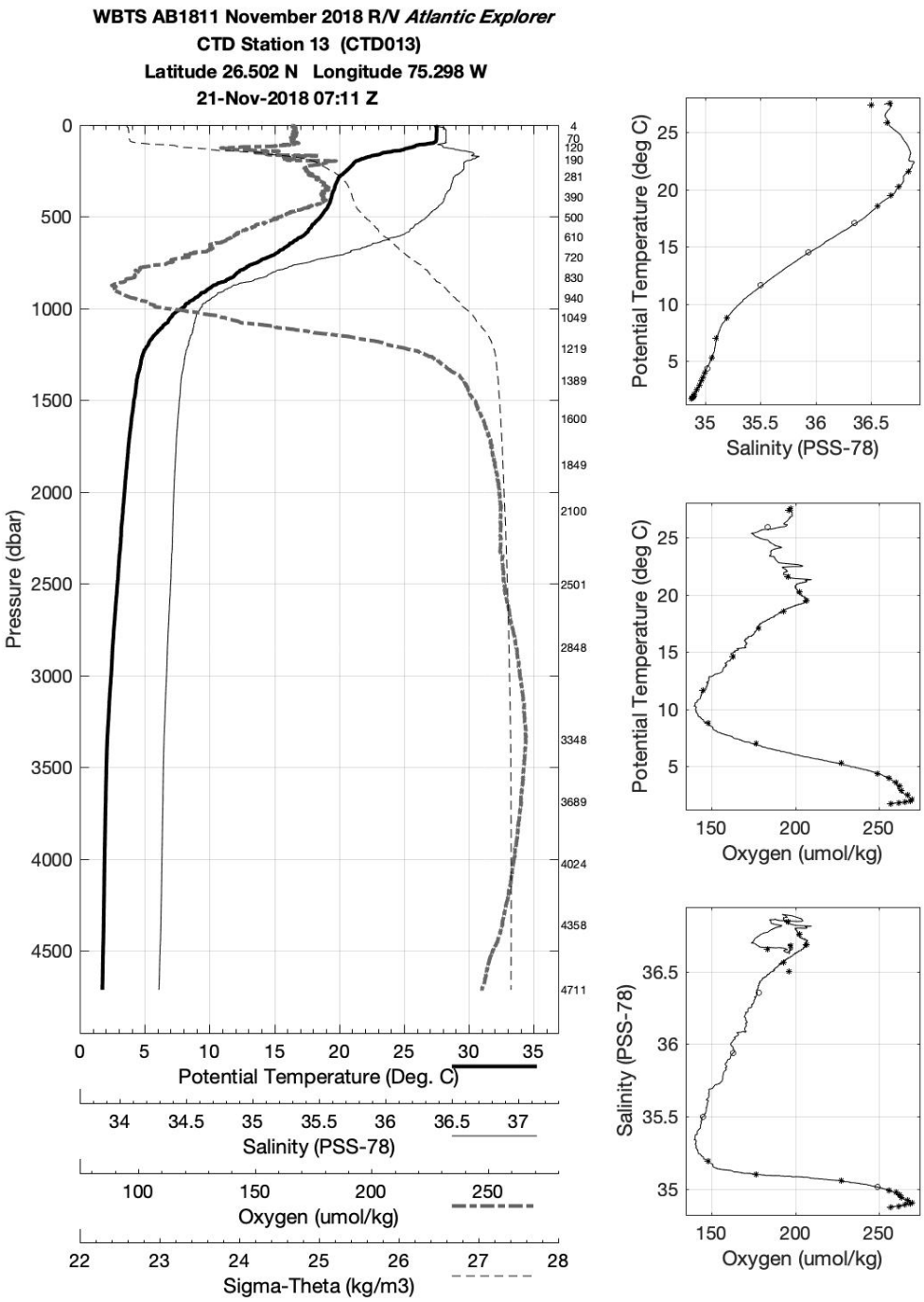
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
4750	1	2.201	1.773	34.873	257.4
4449	2	2.235	1.842	34.879	262.7
4152	3	2.261	1.902	34.886	264.5
3849	4	2.302	1.976	34.892	268.5
3550	5	2.354	2.060	34.898	269.1
3102	6	2.545	2.294	34.911	268.9
2701	7	2.820	2.604	34.926	266.0
2350	8	3.147	6.729	−999.000	−999.0
2002	9	3.536	3.375	34.959	261.6
1699	10	3.954	3.816	34.981	257.4
1448	11	4.450	4.329	35.008	250.8
1210	12	5.128	5.023	35.046	234.8
1036	13	7.593	7.486	35.114	165.3
926	14	9.729	9.619	35.250	138.6
815	15	11.630	11.522	35.492	144.1
703	16	14.557	14.450	35.923	163.3
597	17	16.741	16.641	36.285	173.1
486	18	18.636	18.549	36.575	189.9
375	19	19.455	19.386	36.679	208.4
266	20	20.435	20.384	36.775	200.7
175	21	22.307	22.272	36.853	202.5
86	22	27.294	27.274	36.631	197.8
35	23	27.531	27.523	36.658	197.2
3	24	27.347	27.346	36.548	197.3


WBTS AB1811 November 2018 R/V Atlantic Explorer
CTD Station 12 (CTD012)
Latitude 26.503 N Longitude 75.501 W
21-Nov-2018 01:36 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS-78)
Oxygen (umol/kg)
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS-78)
Oxygen (umol/kg)

WBTS AB1811 November 2018 R/V *Atlantic Explorer*
CTD Station 13 (CTD013)
Latitude 26.502N Longitude 75.298W
21-Nov-2018 07:11Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	27.438	27.438	36.622	196.2	0.004	23.799
10	27.487	27.485	36.645	196.6	0.041	23.801
20	27.520	27.515	36.673	196.8	0.082	23.812
30	27.535	27.528	36.686	196.7	0.123	23.817
50	27.521	27.509	36.685	196.0	0.205	23.823
75	27.519	27.501	36.685	196.4	0.307	23.826
100	27.033	27.010	36.668	197.9	0.409	23.972
125	25.402	25.374	36.696	173.7	0.501	24.509
150	23.557	23.525	36.849	185.5	0.581	25.183
200	21.281	21.242	36.806	205.9	0.706	25.803
250	20.609	20.561	36.789	200.3	0.816	25.976
300	19.944	19.888	36.728	204.3	0.918	26.110
400	19.459	19.385	36.675	205.7	1.117	26.202
500	18.647	18.558	36.565	192.3	1.310	26.331
600	17.378	17.276	36.403	178.2	1.490	26.525
700	15.226	15.116	36.050	164.3	1.651	26.756
800	12.369	12.259	35.601	147.8	1.789	27.006
900	9.886	9.778	35.283	140.5	1.906	27.211
1000	7.948	7.842	35.132	156.7	2.002	27.402
1100	6.503	6.397	35.091	190.8	2.078	27.573
1200	5.357	5.251	35.057	226.4	2.138	27.691
1300	4.805	4.694	35.029	242.6	2.191	27.733
1400	4.497	4.381	35.010	250.0	2.241	27.753
1500	4.296	4.173	34.999	253.1	2.290	27.768
1750	3.899	3.757	34.979	258.6	2.409	27.795
2000	3.605	3.444	34.965	261.0	2.525	27.815
2500	3.109	2.907	34.944	262.6	2.750	27.849
3000	2.658	2.415	34.919	267.5	2.965	27.872
3500	2.335	2.047	34.899	268.6	3.172	27.887
4000	2.250	1.909	34.889	265.6	3.383	27.890
4500	2.192	1.794	34.877	259.0	3.603	27.890

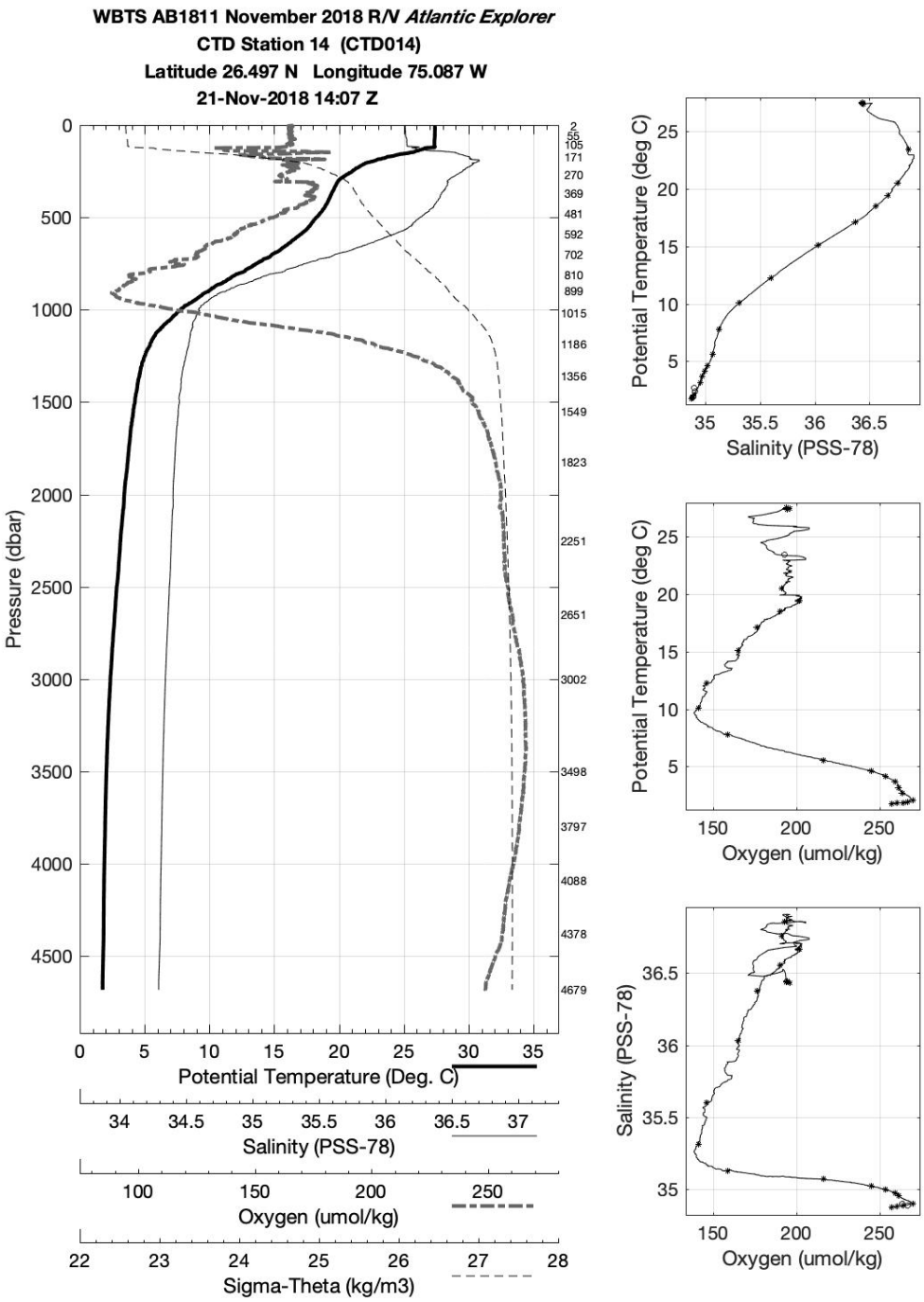
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
4712	1	2.165	1.743	34.870	257.0
4358	2	2.219	1.837	34.881	261.7
4024	3	2.247	1.903	34.888	265.7
3690	4	2.293	1.985	34.894	268.6
3349	5	2.377	2.104	34.900	270.1
2849	6	2.749	2.519	34.924	267.5
2501	7	3.085	2.884	34.942	263.7
2101	8	3.480	3.311	34.958	262.5
1850	9	3.773	3.623	34.974	260.6
1600	10	4.136	4.005	34.991	256.3
1390	11	4.518	4.403	35.014	249.4
1220	12	5.377	5.269	35.055	227.4
1050	13	7.094	6.989	35.100	176.5
941	14	8.910	8.804	35.193	147.8
830	15	11.744	11.634	35.498	144.5
721	16	14.660	14.550	35.937	163.0
610	17	17.172	17.068	36.356	178.1
500	18	18.649	18.559	36.561	193.0
390	19	19.549	19.477	36.684	206.8
281	20	20.307	20.254	36.755	202.6
190	21	21.619	21.581	36.844	195.8
121	22	25.841	25.814	36.651	183.3
70	23	27.533	27.516	36.678	197.4
4	24	27.335	27.334	36.502	196.3


WBTS AB1811 November 2018 R/V Atlantic Explorer
CTD Station 13 (CTD013)
Latitude 26.502 N Longitude 75.298 W
21-Nov-2018 07:11 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS-78)
Oxygen (umol/kg)
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS-78)
Potential Temperature (deg C)
Oxygen (umol/kg)
Salinity (PSS-78)
Oxygen (umol/kg)

WBTS AB1811 November 2018 R/V *Atlantic Explorer*
CTD Station 14 (CTD014)
Latitude 26.497N Longitude 75.087W
21-Nov-2018 14:07Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	27.391	27.391	36.438	195.2	0.004	23.675
10	27.403	27.401	36.437	194.6	0.042	23.671
20	27.405	27.400	36.438	195.1	0.084	23.672
30	27.402	27.395	36.439	195.2	0.127	23.674
50	27.404	27.392	36.439	194.7	0.211	23.676
75	27.396	27.378	36.445	196.2	0.317	23.685
100	27.384	27.361	36.448	194.8	0.423	23.692
125	26.617	26.589	36.502	173.1	0.528	23.981
150	25.482	25.448	36.758	199.2	0.622	24.533
200	22.415	22.374	36.892	195.9	0.768	25.550
250	21.080	21.031	36.801	193.5	0.885	25.857
300	20.047	19.991	36.709	192.9	0.992	26.068
400	19.301	19.228	36.650	202.0	1.191	26.224
500	18.340	18.252	36.531	189.6	1.381	26.382
600	16.977	16.876	36.337	176.8	1.556	26.570
700	14.941	14.833	35.992	165.7	1.714	26.774
800	12.539	12.429	35.634	149.3	1.853	26.998
900	10.050	9.941	35.300	139.9	1.970	27.196
1000	7.867	7.762	35.125	158.4	2.066	27.407
1100	6.355	6.250	35.085	195.3	2.142	27.588
1200	5.463	5.356	35.061	222.5	2.202	27.681
1300	4.895	4.784	35.034	240.3	2.256	27.727
1400	4.582	4.464	35.014	248.0	2.307	27.748
1500	4.375	4.250	35.004	252.1	2.357	27.763
1750	3.927	3.785	34.979	258.4	2.477	27.792
2000	3.591	3.430	34.965	260.9	2.593	27.816
2500	3.057	2.856	34.941	263.2	2.817	27.851
3000	2.597	2.355	34.915	268.1	3.030	27.875
3500	2.341	2.052	34.899	268.5	3.237	27.887
4000	2.236	1.895	34.888	264.9	3.447	27.890
4500	2.200	1.802	34.878	259.2	3.666	27.890

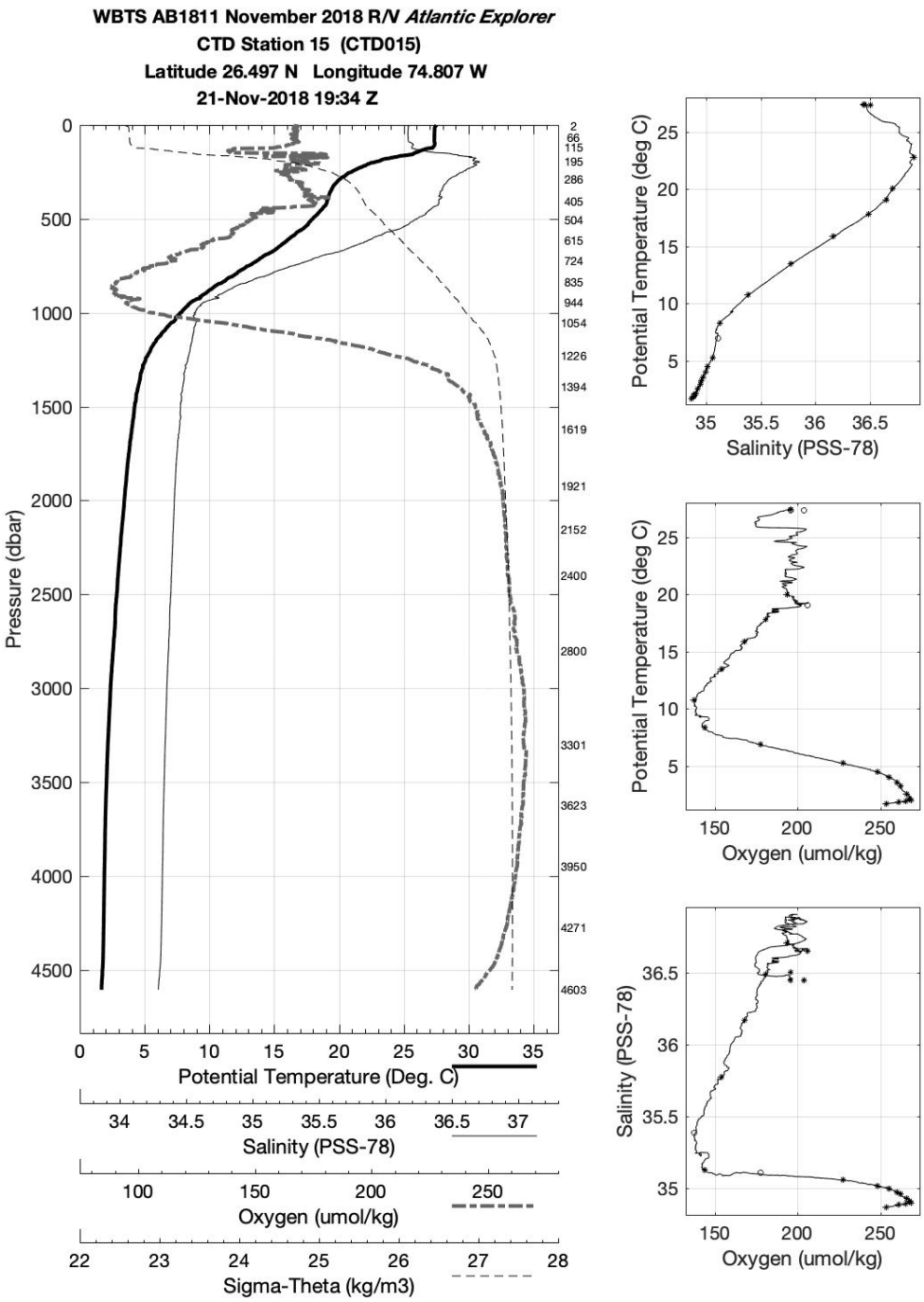
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
4679	1	2.181	1.762	34.874	257.0
4379	2	2.219	1.835	34.881	260.2
4088	3	2.228	1.877	34.885	264.4
3797	4	2.273	1.954	34.889	266.9
3499	5	2.339	2.050	34.898	269.9
3003	6	2.607	2.365	34.910	−999.0
2651	7	2.928	2.715	34.902	263.4
2251	8	3.309	3.128	34.954	261.6
1823	9	3.850	3.702	34.976	259.3
1549	10	4.265	4.137	34.997	253.4
1357	11	4.698	4.584	35.022	245.0
1187	12	5.693	5.585	35.070	216.4
1015	13	7.848	7.741	35.124	158.7
900	14	10.174	10.064	35.310	141.4
810	15	12.353	12.242	35.599	146.0
702	16	15.196	15.086	36.031	165.0
593	17	17.199	17.098	36.375	176.5
481	18	18.536	18.450	36.556	190.3
370	19	19.497	19.429	36.668	201.9
271	20	20.555	20.503	36.757	191.5
172	21	23.462	23.426	36.857	193.0
105	22	27.385	27.361	36.446	194.6
56	23	27.412	27.399	36.432	196.2
2	24	27.511	27.511	36.437	194.2


WBTS AB1811 November 2018 R/V Atlantic Explorer
CTD Station 14 (CTD014)
Latitude 26.497 N Longitude 75.087 W
21-Nov-2018 14:07 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS-78)
Oxygen (umol/kg)
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS-78)
Potential Temperature (deg C)
Oxygen (umol/kg)
Salinity (PSS-78)
Oxygen (umol/kg)

WBTS AB1811 November 2018 R/V *Atlantic Explorer*
CTD Station 15 (CTD015)
Latitude 26.497N Longitude 74.807W
21-Nov-2018 19:34Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	27.502	27.502	36.458	194.9	0.004	23.654
10	27.398	27.396	36.452	195.4	0.042	23.685
20	27.380	27.376	36.452	194.8	0.084	23.690
30	27.376	27.369	36.450	195.7	0.126	23.692
50	27.369	27.358	36.450	195.7	0.211	23.695
75	27.371	27.353	36.452	195.8	0.316	23.698
100	27.410	27.387	36.478	195.0	0.422	23.707
125	26.840	26.812	36.483	178.3	0.527	23.896
150	25.845	25.811	36.690	193.1	0.623	24.368
200	22.626	22.585	36.882	196.8	0.774	25.482
250	21.010	20.962	36.801	192.3	0.893	25.876
300	19.941	19.885	36.700	195.0	0.998	26.090
400	19.163	19.090	36.646	200.1	1.194	26.257
500	18.040	17.952	36.505	181.9	1.380	26.437
600	16.332	16.234	36.229	174.2	1.549	26.639
700	14.235	14.130	35.890	156.2	1.700	26.848
800	12.002	11.894	35.555	143.9	1.832	27.041
900	9.736	9.629	35.263	138.7	1.945	27.220
1000	7.856	7.750	35.092	150.5	2.040	27.383
1100	6.532	6.426	35.087	189.7	2.118	27.566
1200	5.555	5.447	35.064	220.6	2.181	27.672
1300	4.936	4.825	35.033	239.2	2.235	27.722
1400	4.598	4.480	35.016	247.3	2.287	27.747
1500	4.347	4.223	35.003	252.2	2.336	27.765
1750	3.923	3.781	34.981	258.0	2.456	27.794
2000	3.598	3.436	34.964	261.1	2.572	27.815
2500	3.052	2.851	34.941	263.2	2.795	27.852
3000	2.612	2.370	34.917	267.6	3.008	27.874
3500	2.350	2.062	34.900	267.5	3.216	27.886
4000	2.235	1.894	34.888	265.0	3.426	27.890
4500	2.142	1.746	34.871	257.0	3.645	27.888

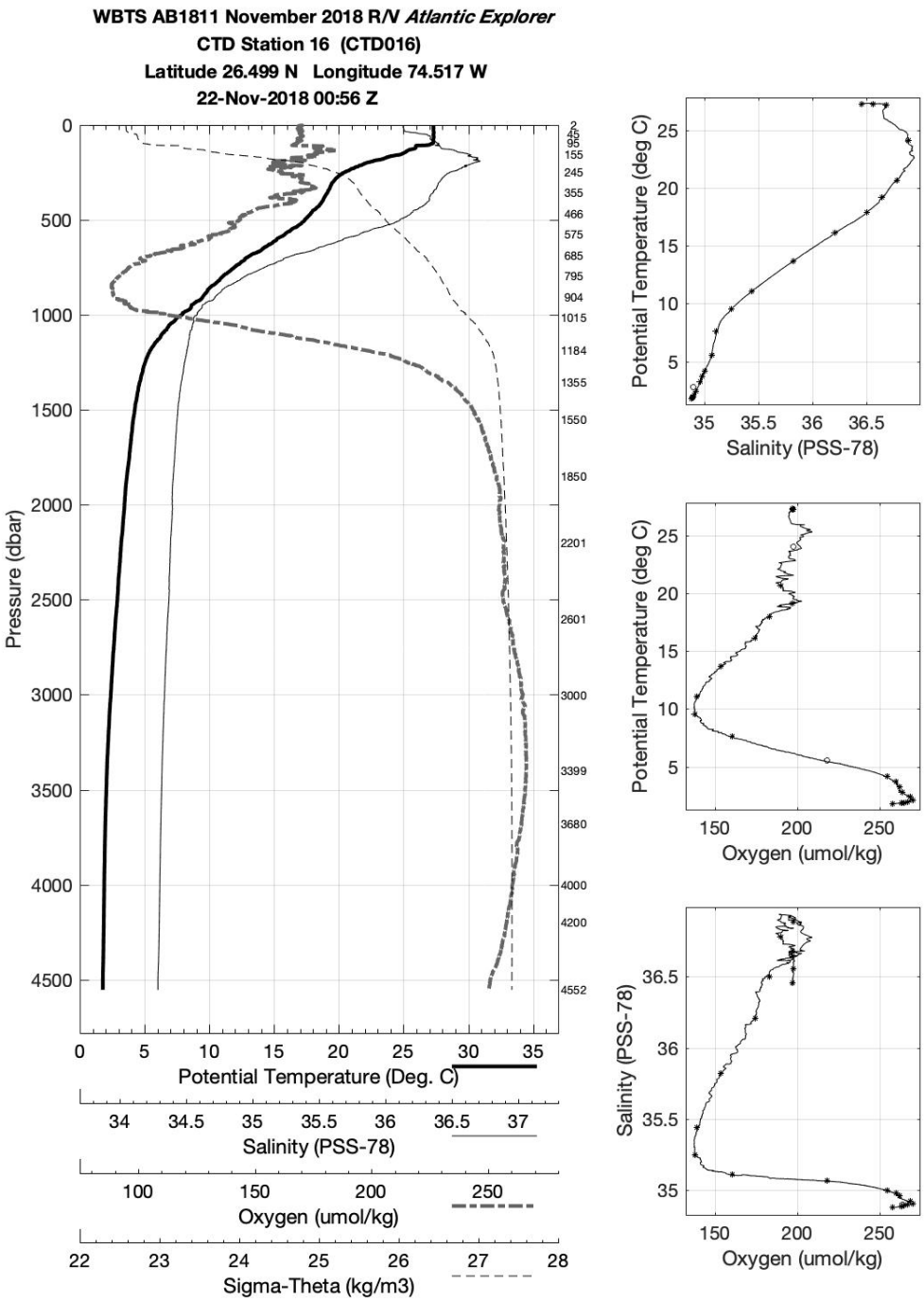
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
4604	1	2.086	1.680	34.863	253.4
4272	2	2.208	1.836	34.883	261.0
3951	3	2.246	1.911	34.888	264.9
3624	4	2.304	2.003	34.894	268.5
3301	5	2.449	2.179	34.907	267.4
2800	6	2.793	2.567	34.926	265.5
2400	7	3.143	2.950	34.945	284.1
2152	8	3.419	3.245	34.958	261.8
1921	9	3.681	3.526	34.968	259.7
1619	10	4.142	4.009	34.993	255.1
1395	11	4.599	4.482	35.015	248.2
1227	12	5.378	5.270	35.058	227.0
1055	13	7.048	6.942	35.109	177.5
945	14	8.402	8.299	35.122	143.8
835	15	10.879	10.773	35.386	137.9
725	16	13.553	13.447	35.776	154.0
615	17	15.942	15.843	36.167	167.8
505	18	17.914	17.826	36.489	180.9
406	19	19.134	19.060	36.652	205.8
287	20	20.078	20.025	36.707	193.9
195	21	22.819	22.779	36.899	107.6
116	22	27.399	27.372	36.504	195.5
66	23	27.349	27.334	36.448	203.7
3	24	27.393	27.393	36.446	195.8


WBTS AB1811 November 2018 R/V Atlantic Explorer
CTD Station 15 (CTD015)
Latitude 26.497 N Longitude 74.807 W
21-Nov-2018 19:34 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS-78)
Oxygen (umol/kg)
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS-78)
Potential Temperature (deg C)
Oxygen (umol/kg)
Salinity (PSS-78)
Oxygen (umol/kg)

WBTS AB1811 November 2018 R/V *Atlantic Explorer*
CTD Station 16 (CTD016)
Latitude 26.499N Longitude 74.517W
22-Nov-2018 00:56Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	27.311	27.311	36.447	197.3	0.004	23.708
10	27.312	27.310	36.446	197.0	0.042	23.708
20	27.315	27.311	36.451	197.6	0.084	23.711
30	27.319	27.312	36.453	197.1	0.126	23.712
50	27.319	27.307	36.599	197.2	0.209	23.824
75	27.320	27.302	36.621	197.2	0.311	23.842
100	27.123	27.100	36.667	195.5	0.413	23.942
125	25.837	25.809	36.700	201.8	0.506	24.376
150	24.949	24.916	36.853	203.6	0.591	24.768
200	22.149	22.109	36.897	187.8	0.731	25.629
250	20.462	20.415	36.745	190.9	0.844	25.982
300	19.613	19.558	36.678	197.3	0.946	26.159
400	18.829	18.757	36.612	195.2	1.137	26.316
500	17.456	17.371	36.425	177.8	1.313	26.519
600	15.319	15.225	36.063	168.3	1.473	26.742
700	12.928	12.830	35.689	146.6	1.613	26.961
800	11.103	11.000	35.429	139.2	1.735	27.110
900	9.661	9.555	35.249	138.0	1.844	27.222
1000	7.953	7.846	35.125	154.5	1.940	27.395
1100	6.457	6.351	35.079	190.3	2.017	27.570
1200	5.438	5.331	35.059	221.7	2.079	27.683
1300	4.964	4.852	35.038	237.5	2.133	27.723
1400	4.609	4.492	35.017	247.0	2.184	27.747
1500	4.367	4.242	35.003	251.9	2.234	27.763
1750	3.963	3.820	34.983	257.5	2.354	27.791
2000	3.611	3.449	34.968	260.6	2.470	27.816
2500	3.103	2.901	34.946	261.5	2.694	27.851
3000	2.635	2.392	34.918	267.8	2.909	27.873
3500	2.336	2.048	34.899	268.4	3.116	27.887
4000	2.224	1.884	34.887	264.5	3.325	27.890
4500	2.176	1.779	34.875	257.5	3.544	27.889

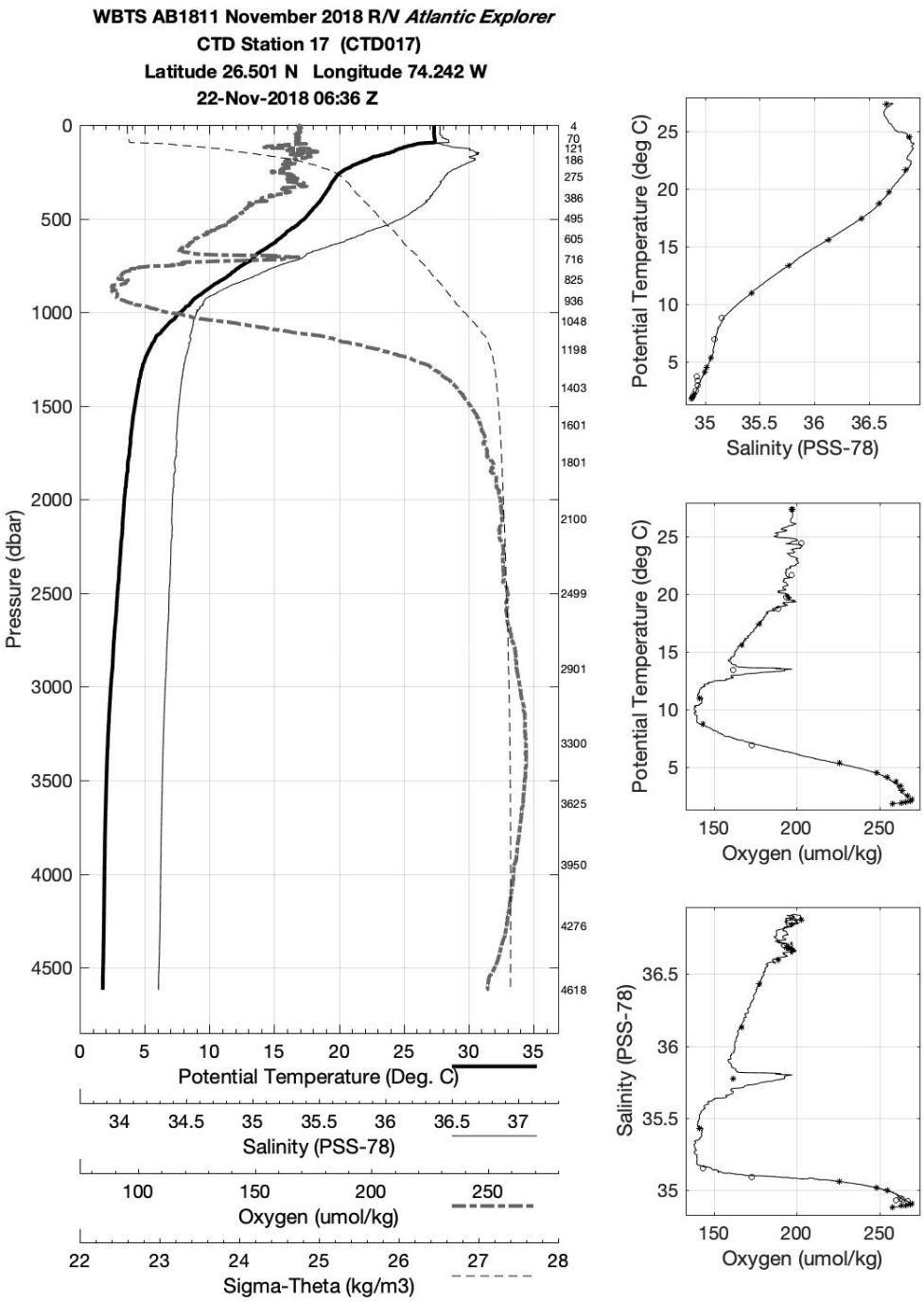
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
4552	1	2.183	1.779	34.878	257.7
4200	2	2.212	1.849	34.884	262.9
4000	3	2.224	1.883	34.888	264.9
3681	4	2.273	1.967	34.894	266.7
3400	5	2.370	2.092	34.903	269.8
3000	6	2.631	2.388	34.919	268.2
2601	7	2.989	2.780	34.895	263.7
2201	8	3.406	3.228	34.958	262.0
1851	9	3.810	3.660	34.976	259.7
1551	10	4.252	4.124	34.998	254.3
1355	11	4.802	6.887	−999.000	−999.0
1185	12	5.643	5.536	35.065	217.8
1015	13	7.702	7.596	35.110	160.3
905	14	9.616	9.509	35.245	137.7
795	15	11.181	11.079	35.436	138.9
685	16	13.818	13.717	35.822	153.5
575	17	16.229	16.135	36.209	174.1
466	18	18.010	17.929	36.501	183.1
355	19	19.239	19.174	36.644	197.0
245	20	20.709	20.662	36.777	189.8
156	21	24.144	24.111	36.883	197.6
95	22	27.253	27.231	36.682	197.1
46	23	27.319	27.308	36.558	197.4
2	24	27.273	27.273	36.454	196.8


WBTS AB1811 November 2018 R/V Atlantic Explorer
CTD Station 16 (CTD016)
Latitude 26.499 N Longitude 74.517 W
22-Nov-2018 00:56 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS-78)
Oxygen (umol/kg)
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS-78)
Potential Temperature (deg C)
Oxygen (umol/kg)
Salinity (PSS-78)
Oxygen (umol/kg)

WBTS AB1811 November 2018 R/V *Atlantic Explorer*
CTD Station 17 (CTD017)
Latitude 26.501N Longitude 74.242W
22-Nov-2018 06:36Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	27.338	27.338	36.664	196.9	0.004	23.863
10	27.339	27.337	36.663	197.0	0.040	23.863
20	27.345	27.341	36.664	197.3	0.081	23.862
30	27.347	27.340	36.664	197.6	0.121	23.862
50	27.350	27.338	36.665	196.9	0.202	23.863
75	27.412	27.395	36.704	197.0	0.304	23.874
100	26.121	26.098	36.662	199.7	0.404	24.257
125	24.807	24.780	36.847	199.1	0.490	24.805
150	23.872	23.840	36.910	196.6	0.565	25.136
200	21.628	21.589	36.846	193.7	0.694	25.736
250	20.244	20.197	36.727	189.6	0.804	26.027
300	19.589	19.534	36.672	195.5	0.904	26.161
400	18.680	18.609	36.586	185.9	1.094	26.334
500	17.427	17.341	36.420	177.1	1.270	26.522
600	15.647	15.551	36.125	165.6	1.430	26.716
700	13.618	13.516	35.804	187.3	1.573	26.910
800	11.683	11.577	35.506	141.3	1.701	27.062
900	9.544	9.439	35.241	139.8	1.812	27.235
1000	7.879	7.773	35.116	155.5	1.906	27.399
1100	6.418	6.313	35.085	192.9	1.982	27.579
1200	5.467	5.360	35.062	222.7	2.043	27.682
1300	4.915	4.803	35.034	239.6	2.098	27.725
1400	4.612	4.494	35.017	247.0	2.149	27.747
1500	4.378	4.254	35.004	251.7	2.199	27.762
1750	3.972	3.829	34.988	257.0	2.319	27.794
2000	3.595	3.434	34.964	261.2	2.435	27.815
2500	3.106	2.904	34.942	263.3	2.660	27.848
3000	2.631	2.388	34.917	267.2	2.876	27.874
3500	2.339	2.050	34.899	268.7	3.083	27.887
4000	2.242	1.901	34.889	265.1	3.293	27.890
4500	2.195	1.797	34.878	259.3	3.513	27.890

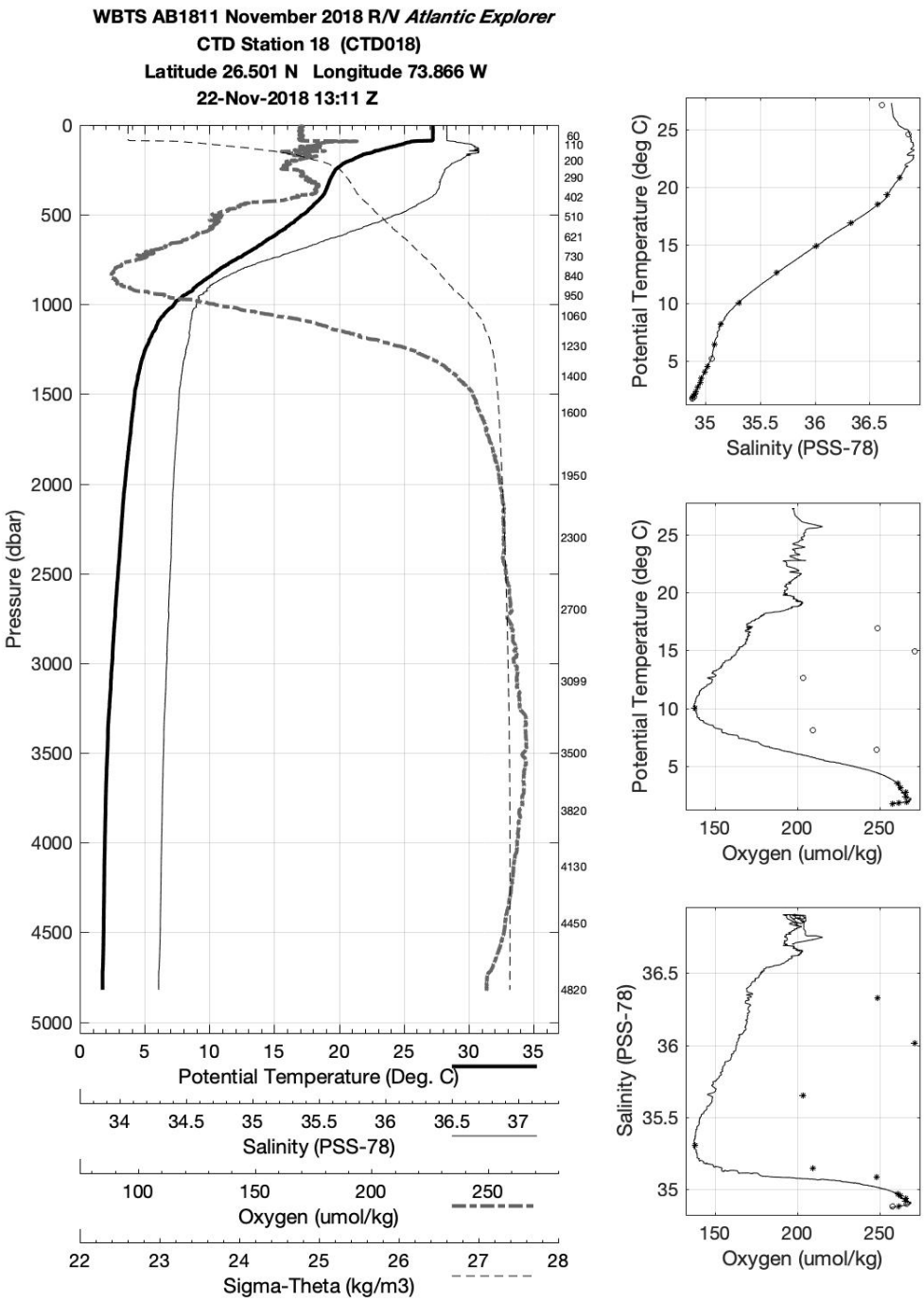
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
4619	1	2.188	1.777	34.876	257.8
4276	2	2.224	1.852	34.887	263.1
3950	3	2.249	1.913	34.890	266.1
3625	4	2.300	1.999	34.896	268.5
3300	5	2.412	2.143	34.904	269.6
2901	6	2.734	2.499	34.921	267.0
2500	7	3.099	2.898	34.934	264.0
2101	8	3.492	3.322	34.938	262.6
1801	9	3.839	3.693	34.929	259.9
1602	10	4.187	4.055	34.996	254.9
1404	11	4.570	4.452	35.015	248.6
1198	12	5.392	5.286	35.058	226.1
1049	13	7.001	6.897	35.085	172.7
937	14	8.854	8.748	35.151	143.2
825	15	11.060	10.955	35.426	141.1
716	16	13.449	13.346	35.772	161.9
605	17	15.677	15.581	36.133	167.2
495	18	17.503	17.419	36.433	177.5
386	19	18.744	18.675	36.596	188.9
275	20	19.732	19.681	36.683	193.6
187	21	21.658	21.621	36.842	197.1
121	22	24.531	24.505	36.876	203.1
70	23	27.352	27.335	36.664	197.5
5	24	27.333	27.331	36.665	197.1


WBTS AB1811 November 2018 R/V Atlantic Explorer
CTD Station 17 (CTD017)
Latitude 26.501 N Longitude 74.242 W
22-Nov-2018 06:36 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS-78)
Oxygen (umol/kg)
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS-78)
Potential Temperature (deg C)
Oxygen (umol/kg)
Salinity (PSS-78)
Oxygen (umol/kg)

WBTS AB1811 November 2018 R/V *Atlantic Explorer*
CTD Station 18 (CTD018)
Latitude 26.501N Longitude 73.866W
22-Nov-2018 13:11Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	27.238	27.238	36.704	197.2	0.004	23.925
10	27.244	27.241	36.702	197.8	0.040	23.923
20	27.248	27.243	36.701	196.9	0.080	23.922
30	27.253	27.246	36.702	197.7	0.119	23.921
50	27.257	27.245	36.702	197.5	0.199	23.922
75	27.262	27.245	36.702	197.0	0.300	23.922
100	25.170	25.148	36.800	204.1	0.393	24.657
125	23.889	23.862	36.898	203.1	0.471	25.120
150	22.629	22.599	36.900	193.3	0.538	25.491
200	20.813	20.775	36.771	195.7	0.655	25.905
250	19.757	19.711	36.688	196.4	0.758	26.127
300	19.394	19.339	36.665	199.5	0.856	26.207
400	18.751	18.679	36.607	196.8	1.044	26.332
500	17.264	17.179	36.376	169.2	1.220	26.528
600	15.381	15.286	36.073	164.8	1.380	26.736
700	13.309	13.209	35.746	148.7	1.521	26.929
800	10.979	10.877	35.411	138.4	1.644	27.118
900	9.073	8.970	35.200	141.0	1.750	27.280
1000	7.391	7.289	35.113	169.9	1.838	27.467
1100	6.131	6.029	35.075	201.3	1.908	27.608
1200	5.471	5.364	35.063	222.0	1.968	27.682
1300	4.929	4.818	35.035	238.3	2.023	27.724
1400	4.597	4.480	35.017	247.0	2.074	27.748
1500	4.360	4.235	35.003	251.7	2.124	27.764
1750	3.997	3.853	34.985	257.2	2.245	27.789
2000	3.647	3.485	34.967	260.6	2.362	27.812
2500	3.156	2.953	34.946	262.4	2.589	27.846
3000	2.743	2.497	34.924	265.0	2.808	27.870
3500	2.415	2.125	34.904	268.0	3.020	27.885
4000	2.272	1.930	34.891	266.1	3.233	27.890
4500	2.235	1.836	34.882	261.9	3.454	27.890

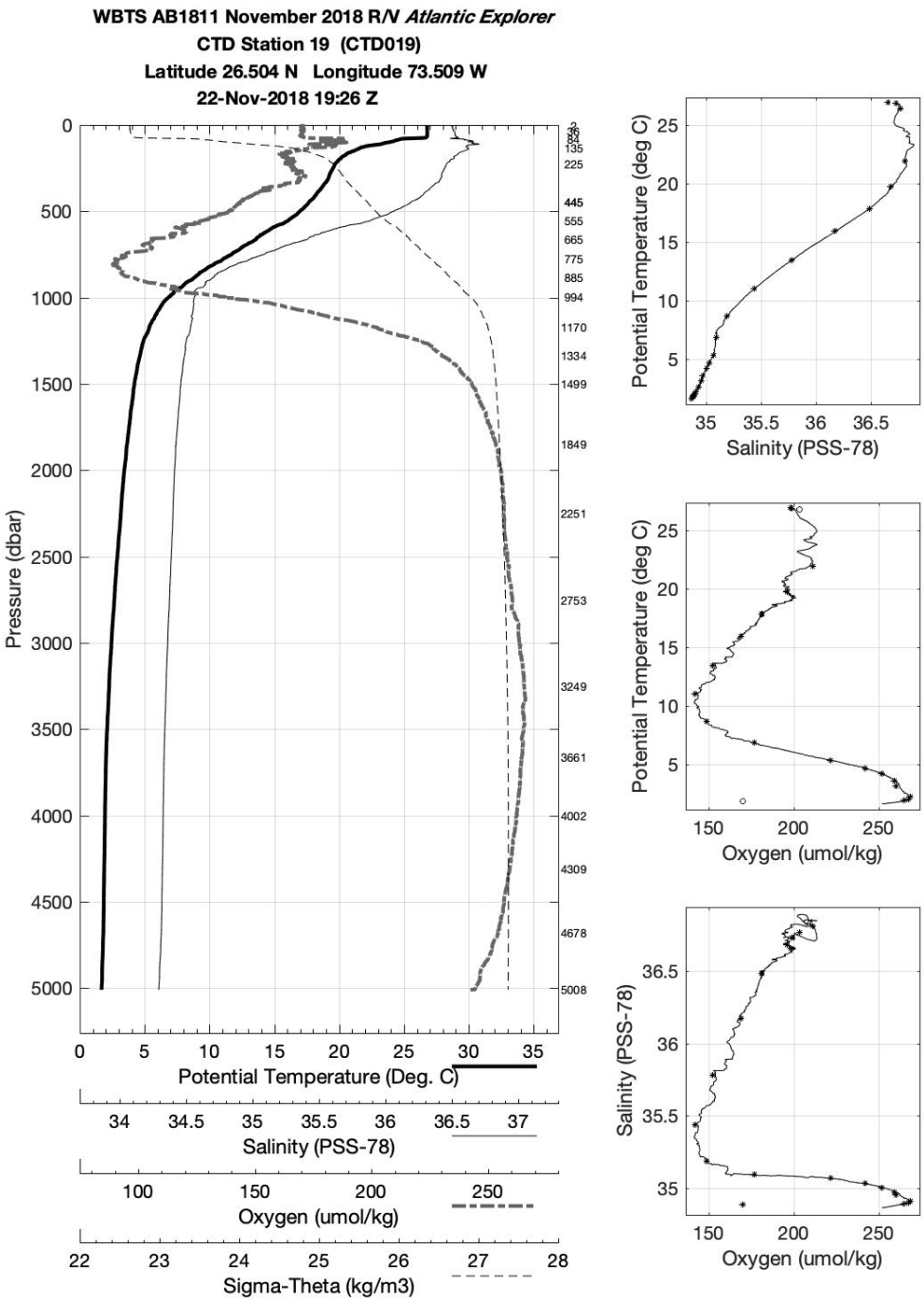
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
4820	1	2.191	1.754	34.883	257.4
4450	2	2.236	1.842	34.881	261.5
4131	3	2.251	1.895	34.899	266.0
3821	4	2.312	1.989	34.895	306.4
3500	5	2.418	2.127	34.903	277.5
3100	6	2.644	2.390	34.917	265.7
2701	7	2.949	2.730	34.935	265.5
2301	8	3.319	3.133	34.953	262.3
1950	9	3.686	3.528	34.968	260.7
1601	10	4.213	4.081	34.995	306.9
1401	11	4.637	4.519	35.018	356.6
1230	12	5.334	5.225	35.060	331.8
1061	13	6.518	6.416	35.081	247.8
950	14	8.252	8.149	35.146	209.4
840	15	10.161	10.059	35.308	137.6
730	16	12.690	12.589	35.649	203.3
621	17	15.007	14.911	36.016	271.1
510	18	16.985	16.900	36.328	248.3
402	19	18.580	18.508	36.578	281.5
291	20	19.415	19.362	36.664	359.7
200	21	20.857	20.818	36.773	289.7
111	22	24.588	24.564	36.860	308.0
60	23	27.131	27.117	36.611	366.3


WBTS AB1811 November 2018 R/V Atlantic Explorer
CTD Station 18 (CTD018)
Latitude 26.501 N Longitude 73.866 W
22-Nov-2018 13:11 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS-78)
Oxygen (umol/kg)
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS-78)
Potential Temperature (deg C)
Oxygen (umol/kg)
Salinity (PSS-78)
Oxygen (umol/kg)

WBTS AB1811 November 2018 R/V *Atlantic Explorer*
CTD Station 19 (CTD019)
Latitude 26.504N Longitude 73.509W
22-Nov-2018 19:26Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	26.779	26.779	36.720	200.3	0.004	24.085
10	26.795	26.793	36.727	199.9	0.038	24.086
20	26.795	26.791	36.726	200.0	0.076	24.086
30	26.799	26.792	36.728	199.7	0.115	24.087
50	26.809	26.797	36.741	199.9	0.191	24.095
75	26.451	26.434	36.752	201.8	0.287	24.219
100	23.844	23.823	36.850	212.4	0.365	25.096
125	22.006	21.981	36.812	209.3	0.432	25.601
150	21.156	21.127	36.801	198.0	0.489	25.831
200	20.038	20.000	36.714	195.2	0.594	26.070
250	19.577	19.531	36.674	196.9	0.692	26.163
300	19.259	19.204	36.655	200.9	0.788	26.234
400	18.321	18.250	36.542	185.6	0.972	26.391
500	17.062	16.978	36.349	177.5	1.144	26.556
600	14.882	14.790	35.989	162.6	1.300	26.781
700	12.765	12.667	35.663	152.2	1.436	26.973
800	10.571	10.471	35.370	142.2	1.556	27.159
900	8.657	8.557	35.181	149.9	1.656	27.330
1000	6.922	6.823	35.088	176.4	1.738	27.513
1100	5.961	5.859	35.074	206.0	1.804	27.629
1200	5.354	5.248	35.061	226.2	1.861	27.694
1300	4.849	4.738	35.033	240.5	1.914	27.732
1400	4.559	4.442	35.016	247.7	1.965	27.752
1500	4.335	4.211	35.003	252.1	2.014	27.766
1750	3.941	3.798	34.982	257.9	2.134	27.793
2000	3.589	3.428	34.964	261.0	2.250	27.816
2500	3.099	2.898	34.943	262.9	2.475	27.849
3000	2.682	2.438	34.920	266.6	2.691	27.871
3500	2.399	2.109	34.902	268.0	2.902	27.885
4000	2.283	1.941	34.892	265.9	3.114	27.890
4500	2.249	1.850	34.884	261.9	3.336	27.890
5000	2.145	1.688	34.865	253.2	3.567	27.887

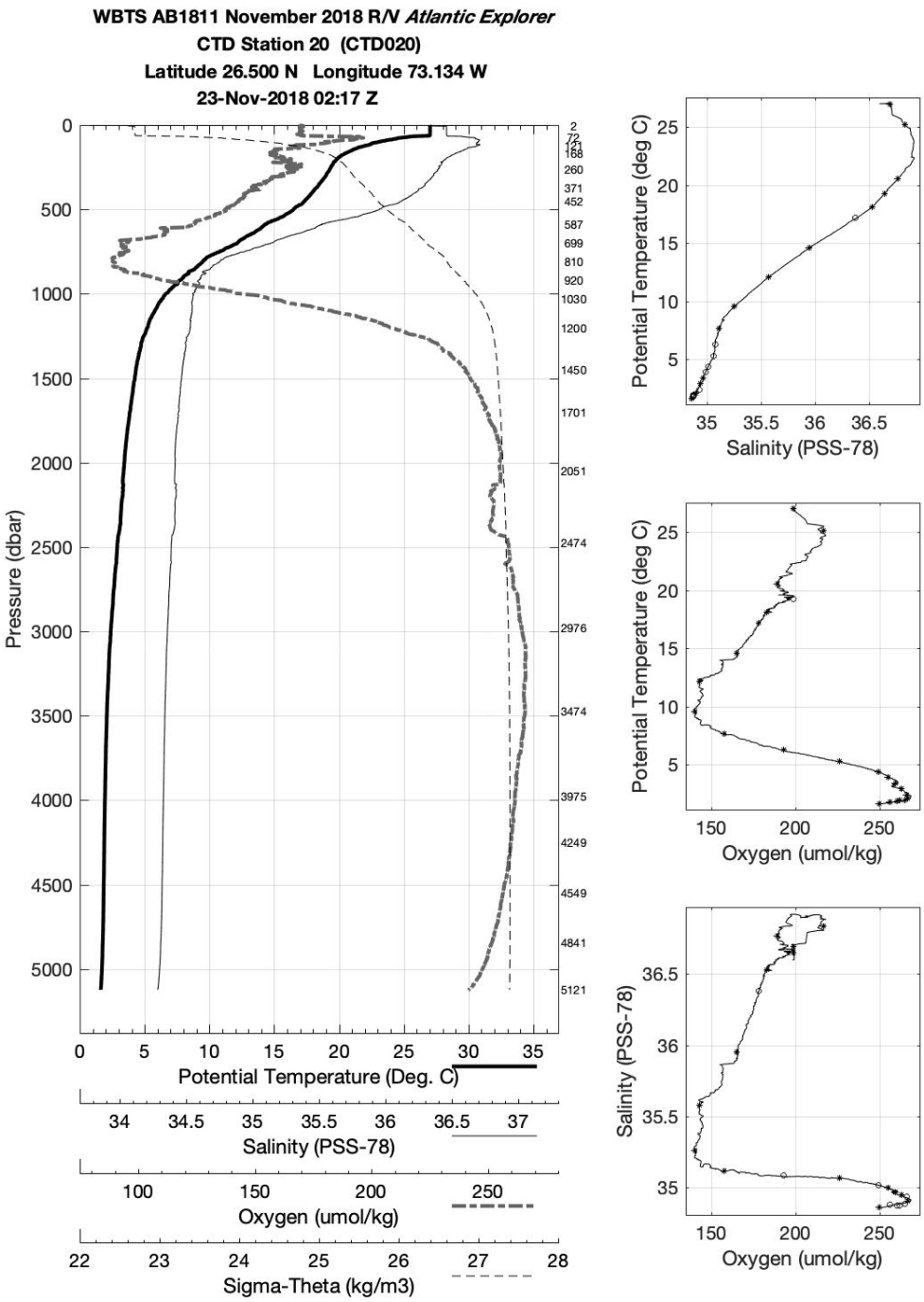
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
5008	1	2.141	1.682	34.864	−999.0
4679	2	2.241	1.820	34.881	−999.0
4310	3	2.248	1.871	34.885	170.4
4003	4	2.291	1.948	34.892	264.6
3662	5	2.348	2.042	34.898	267.4
3250	6	2.519	2.253	34.910	268.0
2753	7	2.882	2.659	34.931	285.2
2251	8	3.339	3.158	34.953	259.9
1850	9	3.789	3.639	34.973	258.7
1499	10	4.337	4.213	35.002	251.5
1334	11	4.789	4.675	35.030	241.7
1170	12	5.491	5.386	35.066	221.3
994	13	7.003	6.905	35.091	176.8
885	14	8.756	8.658	35.187	148.7
776	15	11.103	11.003	35.436	142.2
665	16	13.550	13.454	35.780	152.7
556	17	15.998	15.908	36.173	169.2
445	18	17.910	17.833	36.485	181.6
445	19	17.910	17.833	36.485	181.3
225	20	19.768	19.726	36.686	196.2
135	21	21.934	21.907	36.811	211.0
85	22	26.402	26.383	36.773	203.1
37	23	26.829	26.821	36.734	198.7
3	24	26.859	26.858	36.657	198.0


WBTS AB1811 November 2018 R/V Atlantic Explorer
CTD Station 19 (CTD019)
Latitude 26.504 N Longitude 73.509 W
22-Nov-2018 19:26 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS-78)
Oxygen (umol/kg)
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS-78)
Potential Temperature (deg C)
Oxygen (umol/kg)
Salinity (PSS-78)
Oxygen (umol/kg)

WBTS AB1811 November 2018 R/V *Atlantic Explorer*
CTD Station 20 (CTD020)
Latitude 26.500N Longitude 73.134W
23-Nov-2018 02:17Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	27.004	27.003	36.603	199.3	0.004	23.925
10	27.037	27.035	36.705	199.5	0.039	23.992
20	27.037	27.032	36.706	198.7	0.079	23.993
30	27.043	27.036	36.706	198.8	0.118	23.991
50	27.043	27.032	36.706	198.7	0.196	23.993
75	24.902	24.885	36.885	216.9	0.289	24.802
100	23.080	23.059	36.909	205.5	0.361	25.365
125	21.914	21.889	36.895	196.3	0.423	25.690
150	21.020	20.991	36.811	191.2	0.479	25.875
200	19.902	19.865	36.701	195.7	0.582	26.096
250	19.432	19.386	36.661	195.6	0.680	26.191
300	19.055	19.001	36.622	194.0	0.774	26.261
400	18.018	17.948	36.509	181.8	0.954	26.441
500	16.570	16.487	36.274	175.2	1.121	26.615
600	14.214	14.124	35.879	163.9	1.270	26.840
700	12.230	12.135	35.582	143.8	1.401	27.016
800	9.655	9.561	35.260	140.4	1.512	27.229
900	8.106	8.010	35.132	152.2	1.607	27.376
1000	6.717	6.620	35.079	180.6	1.685	27.533
1100	5.895	5.794	35.075	208.0	1.750	27.638
1200	5.317	5.211	35.064	226.4	1.807	27.701
1300	4.833	4.722	35.034	241.2	1.860	27.734
1400	4.553	4.436	35.019	247.4	1.910	27.755
1500	4.368	4.244	35.008	251.3	1.959	27.767
1750	3.924	3.782	34.985	257.3	2.079	27.797
2000	3.595	3.434	34.967	260.4	2.194	27.817
2500	3.090	2.888	34.942	263.2	2.418	27.849
3000	2.628	2.386	34.917	267.4	2.633	27.874
3500	2.369	2.080	34.901	268.1	2.842	27.886
4000	2.281	1.939	34.892	265.2	3.054	27.890
4500	2.245	1.846	34.883	261.9	3.275	27.890
5000	2.162	1.705	34.867	254.9	3.507	27.888

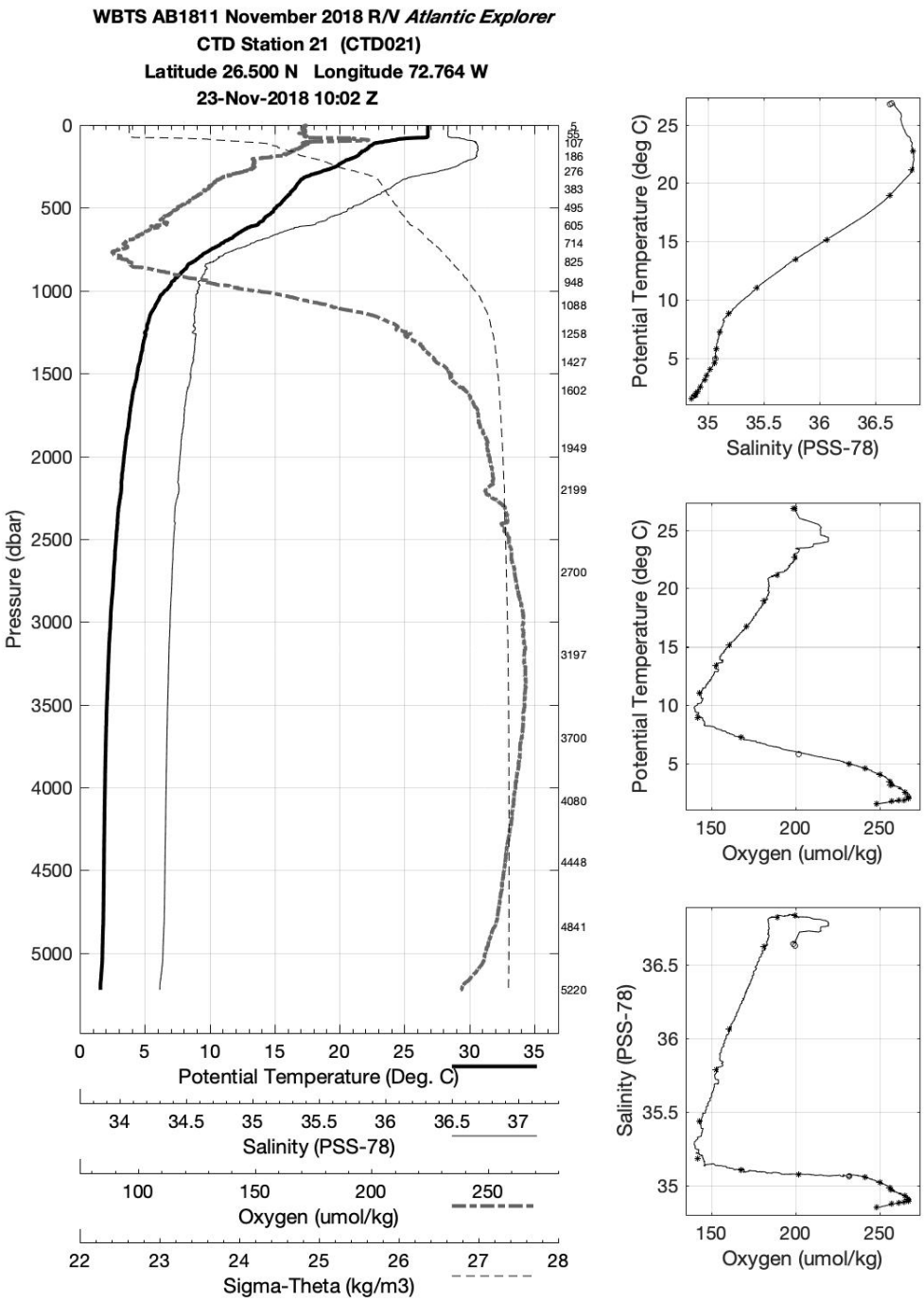
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
5121	1	2.096	1.625	34.858	249.7
4841	2	2.207	1.767	34.880	255.8
4549	3	2.243	1.838	34.872	260.2
4250	4	2.260	1.890	34.873	261.9
3975	5	2.288	1.948	34.886	265.1
3474	6	2.384	2.097	34.903	266.6
2976	7	2.647	2.406	34.932	266.0
2475	8	3.102	2.903	34.945	262.7
2051	9	3.530	3.364	34.967	259.3
1701	10	4.035	3.896	34.994	254.7
1451	11	4.460	4.340	35.017	249.0
1201	12	5.355	5.249	35.066	226.1
1031	13	6.342	6.245	35.085	193.0
921	14	7.746	7.650	35.114	157.8
810	15	9.625	9.530	35.257	140.5
699	16	12.193	12.098	35.576	143.2
587	17	14.694	14.605	35.952	165.1
453	18	17.250	17.174	36.378	178.5
371	19	18.196	18.131	36.531	182.9
261	20	19.303	19.255	36.651	198.6
168	21	20.602	20.570	36.770	189.5
122	22	22.404	22.497	−999.000	−999.0
73	23	25.263	25.247	36.838	216.8
3	24	26.988	26.987	36.693	198.6


WBTS AB1811 November 2018 R/V Atlantic Explorer
CTD Station 20 (CTD020)
Latitude 26.500 N Longitude 73.134 W
23-Nov-2018 02:17 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS-78)
Oxygen (umol/kg)
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS-78)
Potential Temperature (deg C)
Oxygen (umol/kg)
Salinity (PSS-78)
Oxygen (umol/kg)

WBTS AB1811 November 2018 R/V *Atlantic Explorer*
CTD Station 21 (CTD021)
Latitude 26.500N Longitude 72.764W
23-Nov-2018 10:02Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	26.810	26.810	36.655	199.6	0.004	24.026
10	26.815	26.812	36.654	200.0	0.039	24.025
20	26.815	26.811	36.654	199.0	0.078	24.025
30	26.813	26.806	36.654	199.7	0.116	24.027
50	26.811	26.800	36.652	198.0	0.194	24.027
75	26.729	26.712	36.671	200.1	0.292	24.069
100	23.467	23.446	36.826	203.9	0.371	25.189
125	22.428	22.403	36.839	198.9	0.437	25.501
150	22.026	21.996	36.842	196.8	0.498	25.619
200	21.039	21.001	36.824	186.8	0.614	25.883
250	19.797	19.751	36.705	184.0	0.717	26.129
300	17.866	17.814	36.486	176.0	0.809	26.457
400	16.385	16.320	36.254	168.0	0.967	26.638
500	15.193	15.116	36.052	160.4	1.116	26.758
600	13.825	13.737	35.824	156.7	1.255	26.880
700	11.305	11.214	35.458	144.2	1.378	27.093
800	9.271	9.180	35.223	141.1	1.484	27.264
900	7.843	7.748	35.130	158.6	1.574	27.414
1000	6.663	6.567	35.086	183.5	1.650	27.546
1100	5.867	5.766	35.077	208.6	1.714	27.643
1200	5.318	5.212	35.064	227.7	1.770	27.701
1300	5.059	4.947	35.073	233.3	1.823	27.740
1400	4.801	4.682	35.062	239.4	1.874	27.761
1500	4.539	4.413	35.042	245.2	1.923	27.775
1750	3.978	3.835	35.003	253.9	2.041	27.806
2000	3.570	3.409	34.978	257.2	2.154	27.829
2500	2.994	2.795	34.939	263.3	2.372	27.855
3000	2.605	2.363	34.916	267.9	2.583	27.874
3500	2.371	2.082	34.901	268.3	2.792	27.886
4000	2.277	1.935	34.891	265.5	3.004	27.890
4500	2.252	1.853	34.884	262.0	3.225	27.890
5000	2.198	1.739	34.871	256.1	3.458	27.889

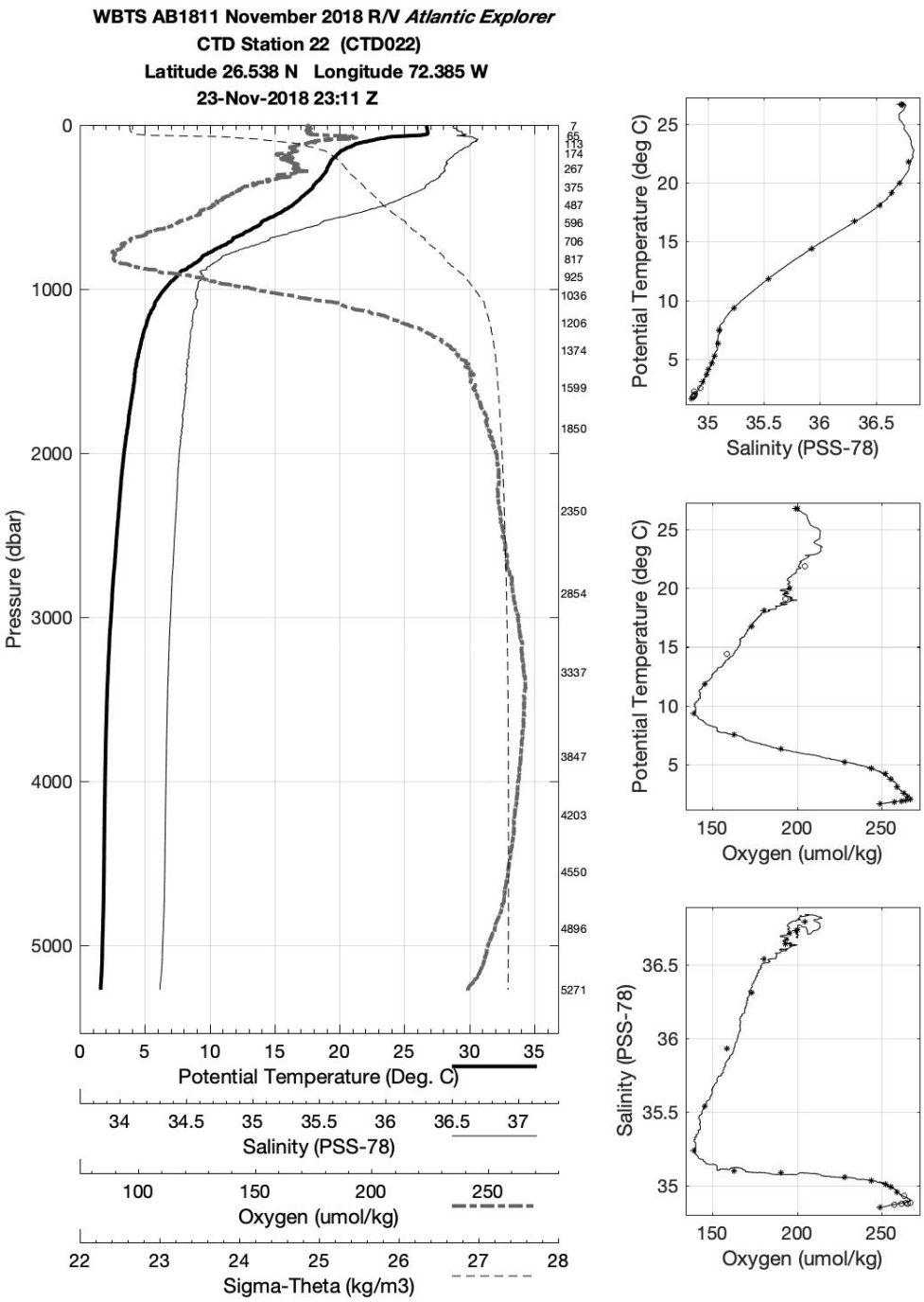
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
5221	1	2.072	1.590	34.852	248.4
4841	2	2.230	1.789	34.877	257.3
4449	3	2.252	1.858	34.884	261.4
4081	4	2.268	1.917	34.889	264.5
3701	5	2.319	2.010	34.896	267.3
3198	6	2.480	2.220	34.910	266.7
2701	7	2.803	2.587	34.929	265.1
2199	8	3.382	3.204	34.972	256.5
1949	9	3.674	3.516	34.985	255.9
1603	10	4.216	4.083	35.019	250.2
1428	11	4.716	4.595	35.058	241.4
1258	12	5.139	5.030	35.063	231.8
1088	13	5.898	5.798	35.077	201.8
949	14	7.331	7.235	35.105	167.6
826	15	8.939	8.846	35.186	141.9
714	16	11.121	11.030	35.436	143.0
606	17	13.532	13.444	35.785	152.7
496	18	15.238	15.160	36.062	160.8
384	19	16.768	17.165	−999.000	−999.0
276	20	18.970	18.920	36.626	181.5
187	21	21.158	21.122	36.826	189.0
108	22	22.720	22.698	36.833	199.8
55	23	26.792	26.780	36.631	199.5
5	24	26.786	26.785	36.643	198.9


WBTS AB1811 November 2018 R/V Atlantic Explorer
CTD Station 21 (CTD021)
Latitude 26.500 N Longitude 72.764 W
23-Nov-2018 10:02 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS-78)
Oxygen (umol/kg)
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS-78)
Potential Temperature (deg C)
Oxygen (umol/kg)
Salinity (PSS-78)
Oxygen (umol/kg)

WBTS AB1811 November 2018 R/V *Atlantic Explorer*
CTD Station 22 (CTD022)
Latitude 26.538N Longitude 72.385W
23-Nov-2018 23:11Z

Pressure	Temp90	PoTemp90	Salinity	Oxygen	DynHt	SigT
dbar	°C	°C	PSS-78	μmol·kg^{-1}	m^2·s^{-2}	kg·m^{-3}
1	26.730	26.730	36.688	199.5	0.004	24.077
10	26.715	26.713	36.683	200.1	0.038	24.078
20	26.740	26.736	36.695	200.3	0.077	24.080
30	26.770	26.763	36.709	200.4	0.115	24.082
50	26.803	26.792	36.743	200.1	0.192	24.098
75	23.665	23.649	36.812	213.1	0.279	25.118
100	22.177	22.157	36.828	202.0	0.345	25.563
125	21.077	21.053	36.787	196.6	0.402	25.840
150	20.392	20.364	36.740	194.4	0.455	25.992
200	19.589	19.552	36.669	194.2	0.554	26.154
250	19.193	19.147	36.636	196.1	0.649	26.234
300	18.852	18.798	36.606	193.8	0.742	26.301
400	17.757	17.688	36.474	178.4	0.918	26.479
500	16.217	16.135	36.217	169.7	1.080	26.653
600	14.034	13.946	35.855	159.2	1.226	26.860
700	11.878	11.785	35.538	144.9	1.353	27.049
800	9.539	9.446	35.245	140.0	1.464	27.237
900	7.803	7.709	35.114	154.5	1.557	27.407
1000	6.642	6.545	35.086	183.3	1.632	27.549
1100	5.847	5.746	35.084	210.9	1.696	27.652
1200	5.281	5.176	35.057	228.5	1.752	27.700
1300	4.904	4.792	35.043	239.9	1.805	27.734
1400	4.612	4.494	35.032	246.2	1.856	27.758
1500	4.388	4.263	35.021	250.4	1.905	27.775
1750	3.975	3.832	35.000	254.6	2.023	27.804
2000	3.567	3.406	34.975	258.0	2.137	27.826
2500	3.046	2.845	34.946	260.3	2.355	27.856
3000	2.642	2.399	34.919	265.0	2.567	27.874
3500	2.376	2.087	34.901	266.9	2.776	27.886
4000	2.286	1.944	34.892	265.1	2.989	27.890
4500	2.264	1.864	34.885	262.3	3.211	27.890
5000	2.197	1.738	34.871	255.7	3.443	27.889

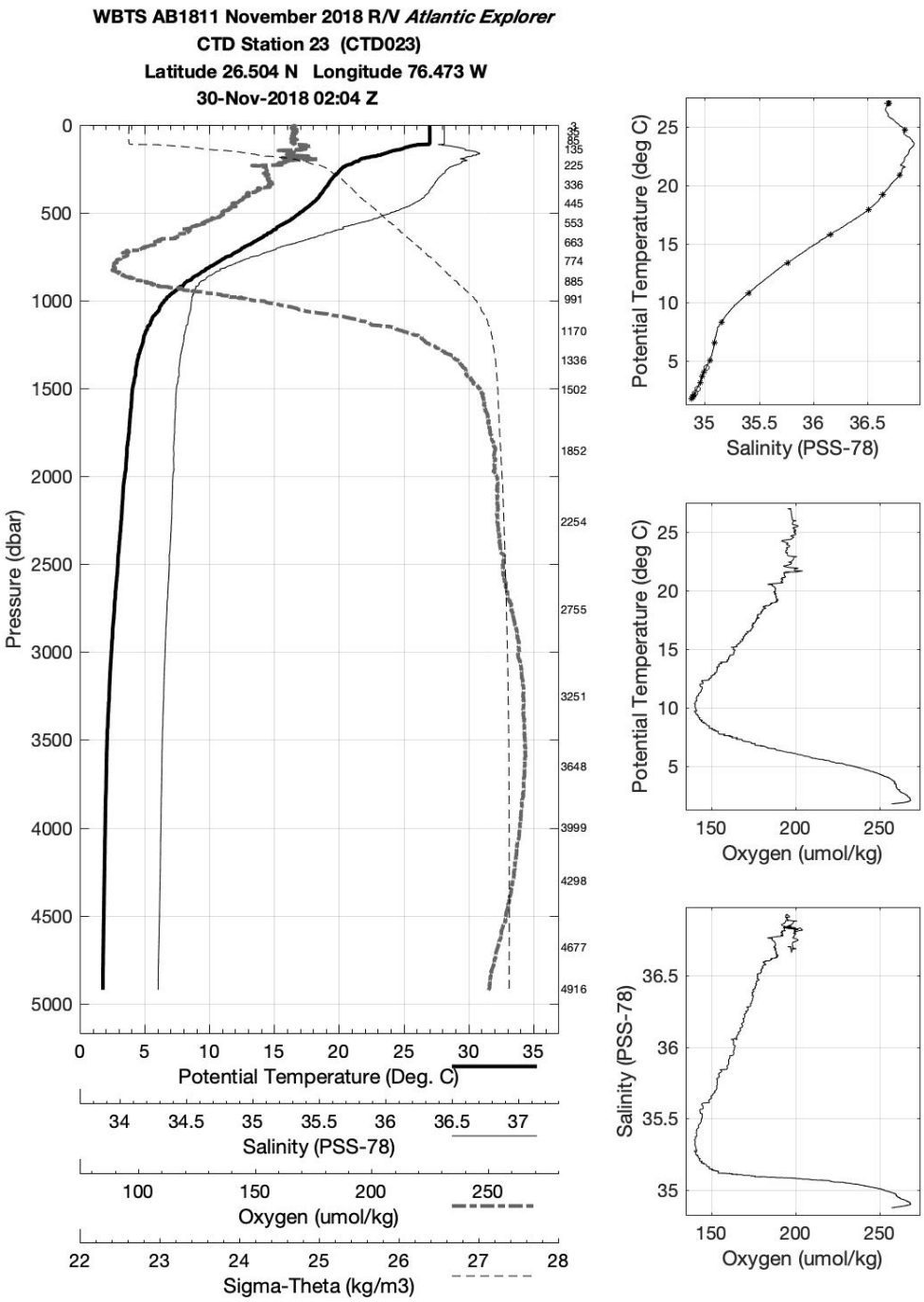
Pressure	Niskin	Temp90	PoTemp90	Salinity	Oxygen
dbar		°C	°C	PSS-78	μmol·kg^{-1}
5271	1	2.101	1.611	34.854	249.2
4897	2	2.230	1.783	34.871	257.2
4550	3	2.260	1.854	34.878	261.5
4204	4	2.270	1.905	34.883	264.4
3847	5	2.311	1.986	34.887	266.8
3338	6	2.461	2.187	34.879	265.5
2854	7	2.745	2.514	34.931	263.5
2351	8	3.204	3.015	34.958	258.8
1851	9	3.829	3.678	34.991	255.5
1599	10	4.228	4.096	35.009	252.0
1374	11	4.740	4.623	35.037	244.0
1207	12	5.320	5.214	35.061	228.0
1036	13	6.420	6.321	35.091	190.3
926	14	7.486	7.391	35.102	162.7
817	15	9.427	9.332	35.237	139.3
707	16	11.885	11.791	35.541	145.7
596	17	14.489	14.399	35.931	158.7
487	18	16.784	16.702	36.310	173.1
376	19	18.200	18.134	36.537	180.7
268	20	19.175	19.127	36.639	193.4
175	21	20.055	20.022	36.712	195.8
114	22	21.848	21.825	36.792	204.7
65	23	26.701	26.686	36.738	200.6
7	24	26.735	26.734	36.727	199.6


WBTS AB1811 November 2018 R/V Atlantic Explorer
CTD Station 22 (CTD022)
Latitude 26.538 N Longitude 72.385 W
23-Nov-2018 23:11 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS-78)
Oxygen (umol/kg)
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS-78)
Potential Temperature (deg C)
Oxygen (umol/kg)
Salinity (PSS-78)
Oxygen (umol/kg)

WBTS AB1811 November 2018 R/V *Atlantic Explorer*
CTD Station 23 (CTD023)
Latitude 26.504N Longitude 76.473W
30-Nov-2018 02:04Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	27.001	27.001	36.702	196.2	0.004	24.000
10	27.012	27.010	36.701	196.1	0.039	23.997
20	27.016	27.012	36.701	196.4	0.078	23.996
30	27.023	27.016	36.701	197.1	0.117	23.995
50	27.028	27.016	36.701	196.3	0.196	23.995
75	27.034	27.017	36.702	196.3	0.294	23.995
100	27.035	27.012	36.702	196.4	0.393	23.996
125	25.334	25.306	36.772	199.3	0.486	24.587
150	24.067	24.035	36.892	195.6	0.565	25.064
200	21.630	21.590	36.841	194.7	0.697	25.733
250	20.231	20.184	36.723	188.2	0.806	26.028
300	19.584	19.529	36.665	188.6	0.907	26.157
400	18.598	18.527	36.579	182.0	1.096	26.350
500	17.051	16.967	36.359	174.2	1.270	26.566
600	15.014	14.921	36.005	164.3	1.426	26.765
700	12.642	12.545	35.637	149.8	1.563	26.978
800	10.332	10.234	35.332	140.6	1.681	27.171
900	8.201	8.105	35.135	152.4	1.779	27.364
1000	6.609	6.513	35.088	185.0	1.857	27.555
1100	5.684	5.585	35.067	214.1	1.920	27.658
1200	5.054	4.951	35.039	235.3	1.975	27.712
1300	4.707	4.597	35.021	244.0	2.027	27.738
1400	4.428	4.312	35.008	249.9	2.076	27.759
1500	4.189	4.067	34.992	254.3	2.125	27.773
1750	3.944	3.801	34.980	257.5	2.243	27.791
2000	3.624	3.462	34.969	259.5	2.360	27.816
2500	3.139	2.936	34.946	261.6	2.585	27.848
3000	2.679	2.436	34.919	266.4	2.802	27.871
3500	2.395	2.106	34.902	268.3	3.013	27.884
4000	2.301	1.958	34.892	266.8	3.227	27.889
4500	2.251	1.851	34.884	262.4	3.449	27.890

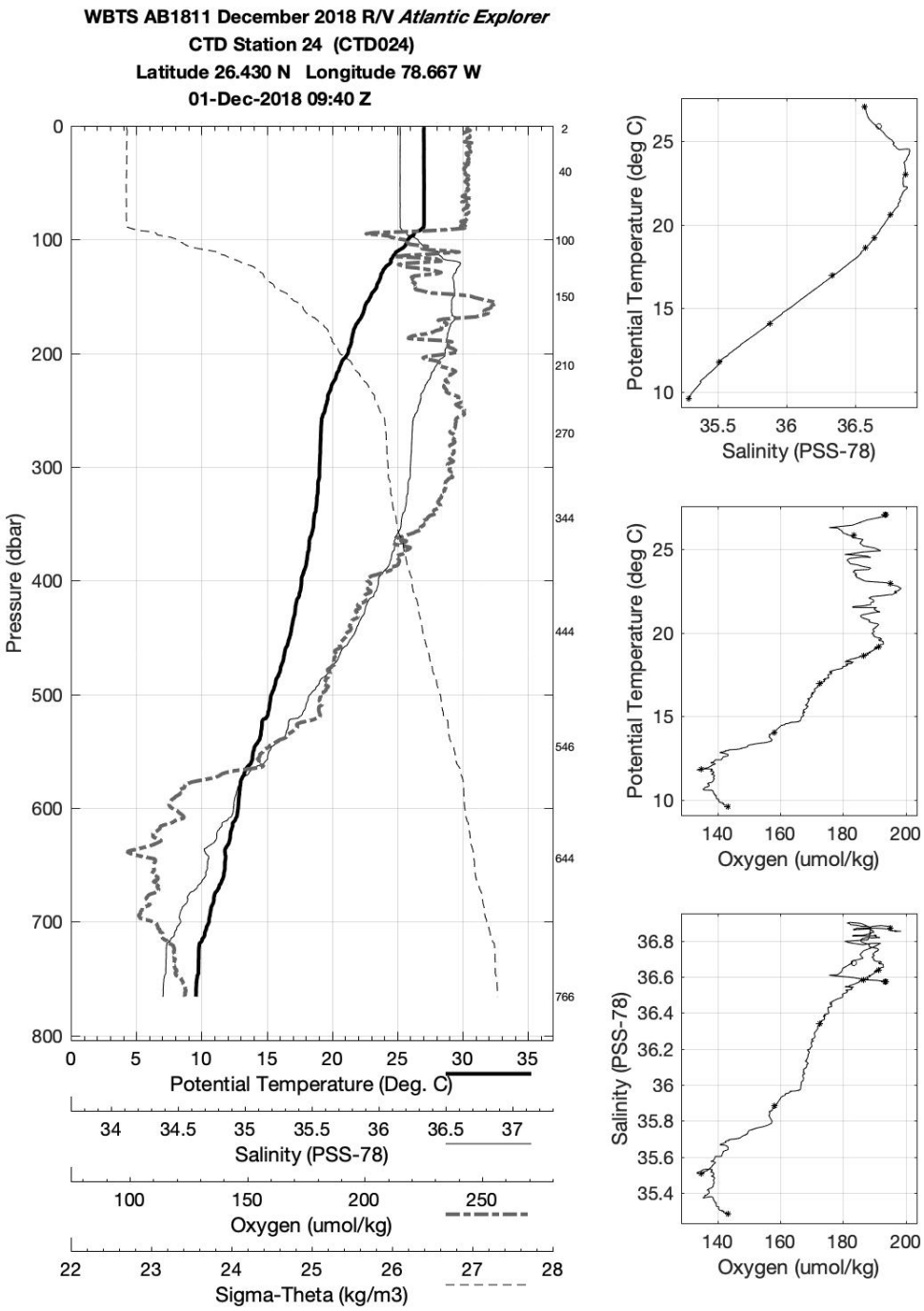
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
4916	1	2.232	1.783	34.816	−999.0
4678	2	2.229	1.809	34.881	−999.0
4299	3	2.273	1.897	34.889	−999.0
3999	4	2.294	1.952	34.893	−999.0
3648	5	2.359	2.054	34.900	−999.0
3251	6	2.522	2.256	34.914	−999.0
2755	7	2.851	2.628	34.933	−999.0
2255	8	3.334	3.152	34.959	−999.0
1853	9	3.815	3.664	34.980	−999.0
1503	10	4.165	4.043	34.993	−999.0
1337	11	4.524	4.413	35.015	−999.0
1170	12	5.161	5.059	35.047	−999.0
991	13	6.683	6.587	35.091	−999.0
886	14	8.381	8.284	35.152	−999.0
775	15	10.922	10.824	35.408	−999.0
664	16	13.507	13.411	35.770	−999.0
554	17	15.857	15.769	36.158	−999.0
446	18	17.997	17.919	36.508	−999.0
337	19	19.246	19.184	36.637	−999.0
225	20	20.930	20.886	36.792	−999.0
136	21	24.755	24.726	36.843	−999.0
85	22	27.041	27.021	36.693	−999.0
35	23	27.033	27.025	36.688	−999.0
3	24	27.012	27.012	36.688	−999.0


WBTS AB1811 November 2018 R/V Atlantic Explorer
CTD Station 23 (CTD023)
Latitude 26.504 N Longitude 76.473 W
30-Nov-2018 02:04 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS-78)
Oxygen (umol/kg)
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS-78)
Potential Temperature (deg C)
Oxygen (umol/kg)
Salinity (PSS-78)
Oxygen (umol/kg)

WBTS AB1811 December 2018 R/V *Atlantic Explorer*
CTD Station 24 (CTD024)
Latitude 26.430N Longitude 78.667W
01-Dec-2018 09:40Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	27.040	27.039	36.573	193.4	0.004	23.890
10	27.036	27.034	36.573	193.8	0.040	23.892
20	27.047	27.042	36.572	193.5	0.080	23.889
30	27.045	27.038	36.572	193.4	0.120	23.890
50	27.063	27.051	36.572	193.3	0.201	23.886
75	27.065	27.048	36.572	193.5	0.302	23.887
100	25.831	25.809	36.669	182.1	0.400	24.353
125	24.084	24.057	36.885	184.5	0.482	25.052
150	23.001	22.970	36.865	194.1	0.553	25.357
200	21.259	21.220	36.817	190.7	0.674	25.817
250	19.503	19.457	36.667	192.9	0.777	26.177
300	19.097	19.043	36.628	190.3	0.871	26.255
400	17.734	17.665	36.455	175.7	1.051	26.470
500	15.445	15.367	36.084	167.4	1.211	26.726
600	12.893	12.809	35.667	141.3	1.347	26.948
700	10.669	10.582	35.380	137.9	1.465	27.147

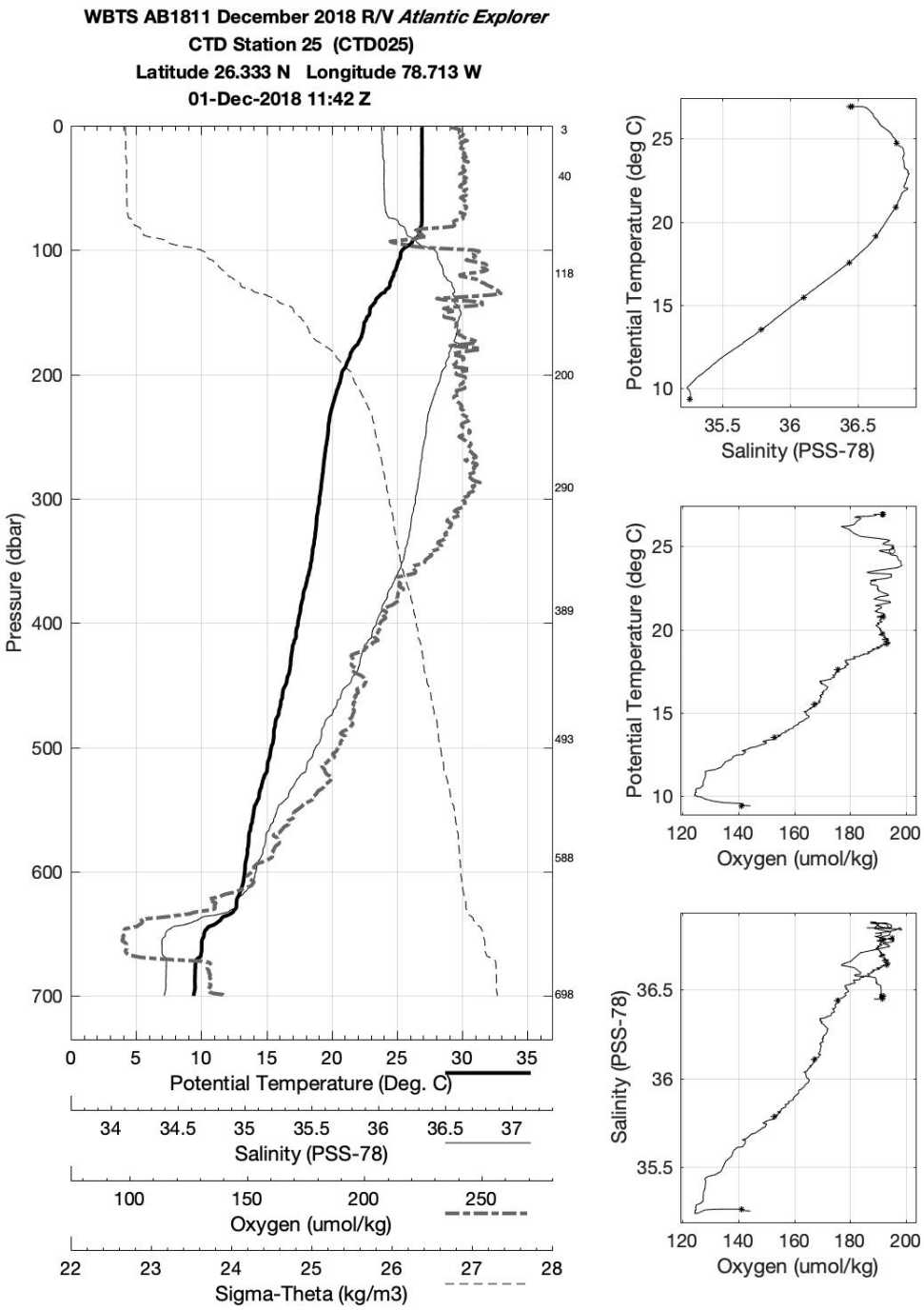
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
766	1	9.668	9.578	35.285	143.4
644	2	11.838	11.753	35.509	134.8
546	3	14.167	14.086	35.883	158.3
445	4	17.010	16.935	36.338	172.6
345	5	18.667	18.605	36.580	186.5
270	6	19.228	19.179	36.639	191.3
210	7	20.651	20.611	36.762	206.0
150	8	22.997	22.966	36.868	195.0
100	9	25.901	25.878	36.675	183.5
40	10	27.058	27.049	36.573	193.5
2	11	27.041	27.041	36.573	193.6


WBTS AB1811 December 2018 R/V Atlantic Explorer
CTD Station 24 (CTD024)
Latitude 26.430 N Longitude 78.667 W
01-Dec-2018 09:40 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS-78)
Oxygen (umol/kg)
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS-78)
Potential Temperature (deg C)
Oxygen (umol/kg)
Salinity (PSS-78)
Oxygen (umol/kg)

WBTS AB1811 December 2018 R/V *Atlantic Explorer*
CTD Station 25 (CTD025)
Latitude 26.333N Longitude 78.713W
01-Dec-2018 11:42Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	26.905	26.905	36.446	188.5	0.004	23.838
10	26.908	26.905	36.449	190.5	0.041	23.840
20	26.916	26.912	36.452	191.2	0.081	23.840
30	26.910	26.903	36.460	191.5	0.122	23.849
50	26.914	26.903	36.460	191.5	0.203	23.849
75	26.922	26.905	36.522	190.9	0.305	23.895
100	25.415	25.393	36.738	193.1	0.401	24.535
125	24.548	24.521	36.818	194.3	0.483	24.862
150	22.946	22.915	36.880	187.9	0.555	25.385
200	20.786	20.747	36.772	189.7	0.675	25.913
250	19.722	19.676	36.686	190.2	0.777	26.134
300	19.104	19.050	36.631	190.8	0.873	26.256
400	17.477	17.408	36.417	174.9	1.051	26.504
500	15.449	15.370	36.084	166.8	1.208	26.725
600	13.420	13.334	35.756	149.9	1.346	26.911
700	9.482	9.401	35.251	144.4	1.459	27.249

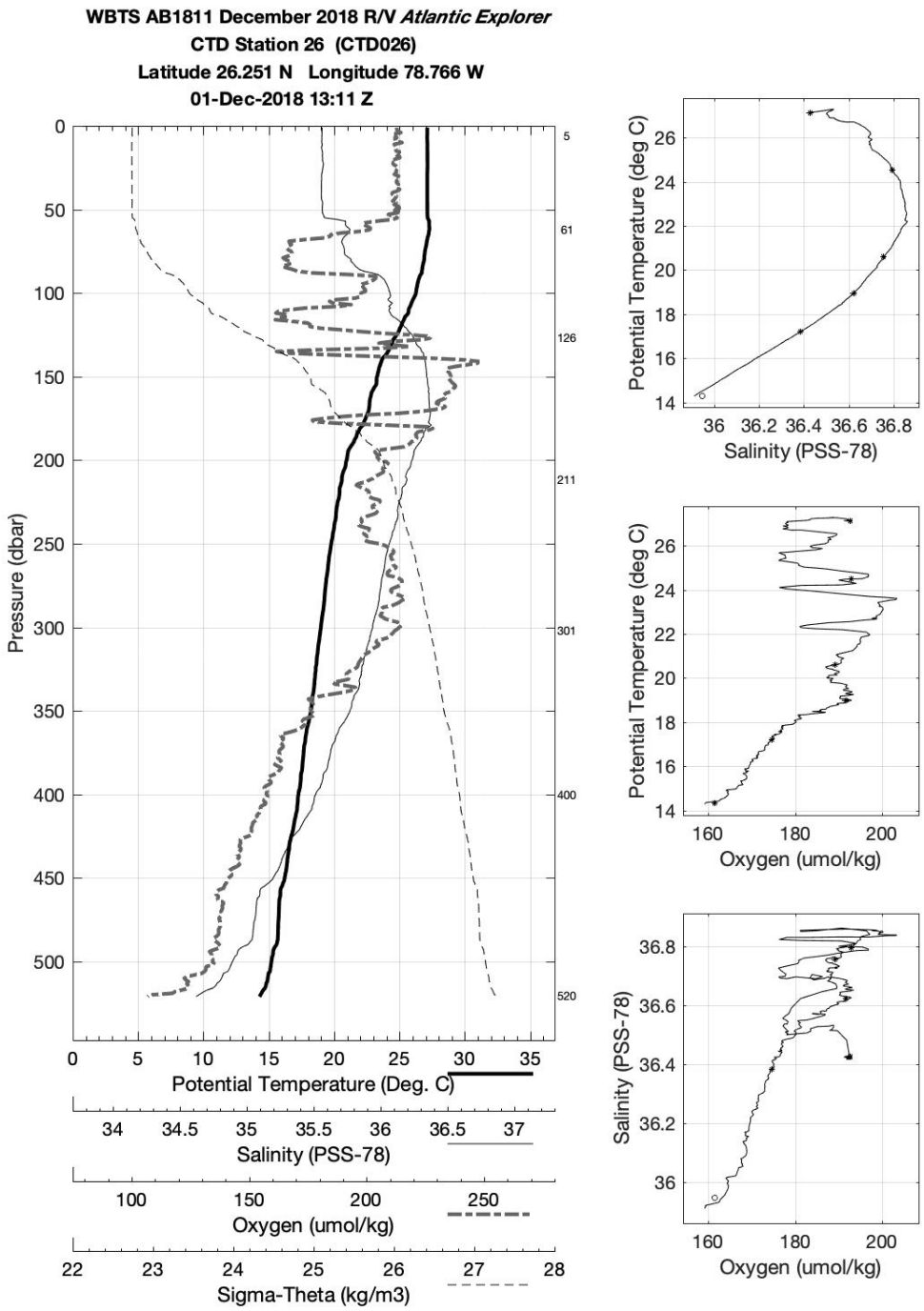
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
699	1	9.454	9.374	35.260	141.3
589	2	13.592	13.507	35.784	153.1
493	3	15.551	15.473	36.104	167.4
390	4	17.631	17.564	36.437	175.4
291	5	19.183	19.130	36.639	193.2
200	6	20.898	20.859	36.781	191.7
118	7	24.711	24.686	36.790	195.0
40	8	26.903	26.894	36.460	191.9
3	9	26.908	26.907	36.448	191.5


WBTS AB1811 December 2018 R/V Atlantic Explorer
CTD Station 25 (CTD025)
Latitude 26.333 N Longitude 78.713 W
01-Dec-2018 11:42 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS-78)
Oxygen (umol/kg)
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS-78)
Potential Temperature (deg C)
Oxygen (umol/kg)
Salinity (PSS-78)
Oxygen (umol/kg)

WBTS AB1811 December 2018 R/V *Atlantic Explorer*
CTD Station 26 (CTD026)
Latitude 26.251N Longitude 78.766W
01-Dec-2018 13:11Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	27.121	27.121	36.421	192.4	0.004	23.749
10	27.130	27.128	36.419	193.1	0.041	23.746
20	27.140	27.135	36.422	192.1	0.083	23.746
30	27.130	27.123	36.419	192.6	0.124	23.747
50	27.139	27.127	36.421	191.8	0.208	23.748
75	26.962	26.945	36.511	178.3	0.311	23.874
100	26.280	26.258	36.696	187.6	0.408	24.232
125	24.803	24.776	36.787	194.1	0.495	24.761
150	23.315	23.284	36.844	199.6	0.569	25.250
200	20.995	20.957	36.785	190.0	0.694	25.866
250	19.821	19.775	36.693	190.0	0.798	26.113
300	19.037	18.983	36.626	192.7	0.894	26.269
400	17.332	17.264	36.395	175.0	1.070	26.521
500	15.278	15.200	36.057	167.8	1.225	26.743

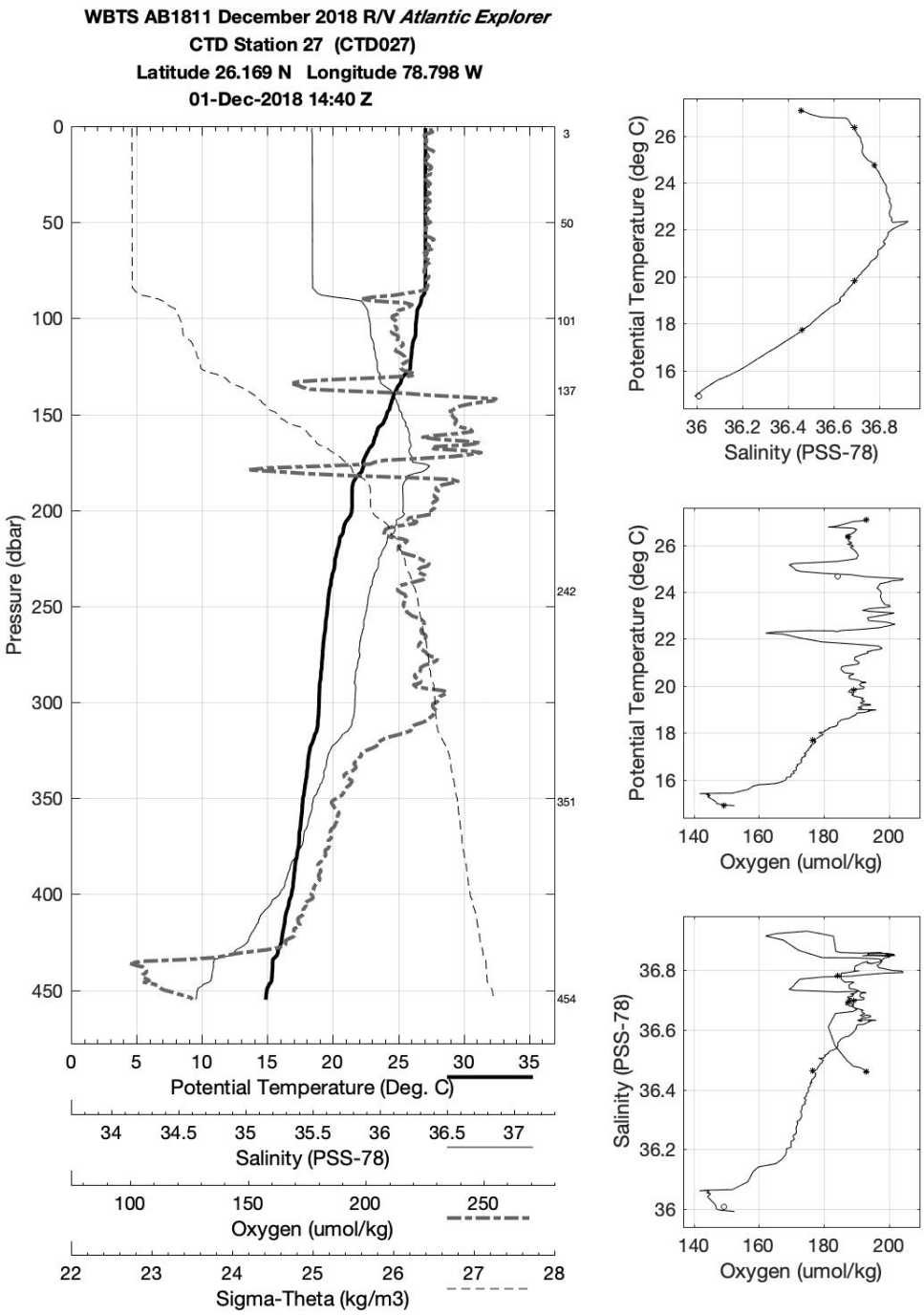
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
520	1	14.382	14.304	35.945	161.5
400	2	17.289	17.221	36.383	174.5
302	3	19.011	18.957	36.623	191.7
212	4	20.655	20.614	36.758	189.1
127	5	24.561	24.534	36.797	193.0
62	6	27.142	27.175	−999.000	−999.0
6	7	27.115	27.114	36.426	192.7


WBTS AB1811 December 2018 R/V Atlantic Explorer
CTD Station 26 (CTD026)
Latitude 26.251 N Longitude 78.766 W
01-Dec-2018 13:11 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS-78)
Oxygen (umol/kg)
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS-78)
Potential Temperature (deg C)
Oxygen (umol/kg)
Salinity (PSS-78)
Oxygen (umol/kg)

WBTS AB1811 December 2018 R/V *Atlantic Explorer*
CTD Station 27 (CTD027)
Latitude 26.169N Longitude 78.798W
01-Dec-2018 14:40Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	27.078	27.078	36.457	193.3	0.004	23.790
10	27.087	27.084	36.458	192.9	0.041	23.789
20	27.085	27.080	36.458	192.9	0.082	23.791
30	27.087	27.080	36.459	193.2	0.123	23.791
50	27.091	27.079	36.459	193.3	0.206	23.792
75	27.095	27.078	36.459	192.2	0.309	23.792
100	26.412	26.390	36.686	186.7	0.409	24.183
125	25.954	25.926	36.719	188.2	0.501	24.354
150	24.153	24.121	36.818	196.9	0.583	24.982
200	21.486	21.447	36.822	193.4	0.711	25.758
250	19.652	19.606	36.678	188.7	0.815	26.146
300	18.998	18.944	36.629	194.3	0.910	26.281
400	16.911	16.844	36.327	172.8	1.081	26.571

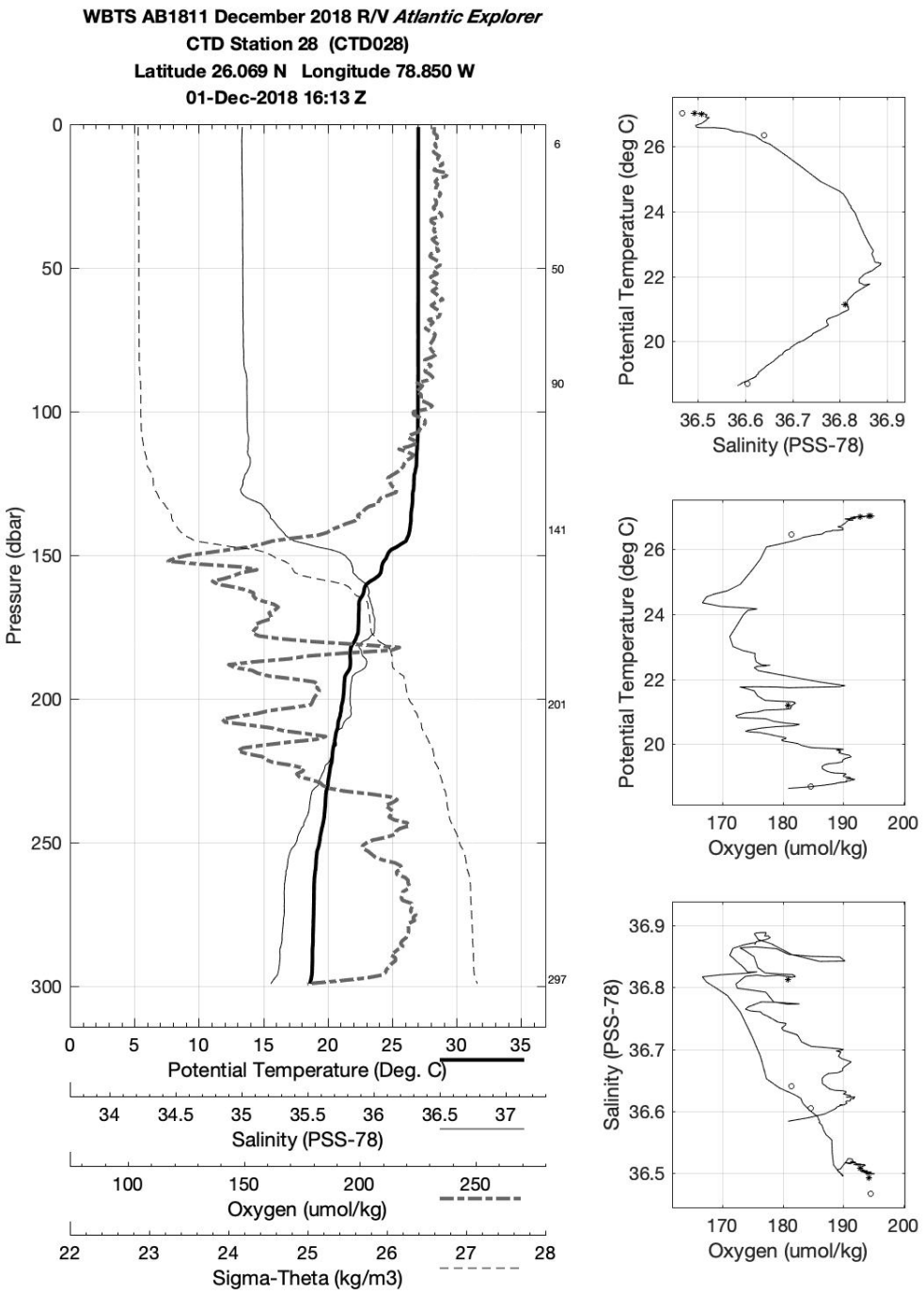
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
454	1	14.957	14.887	36.009	149.4
352	2	17.766	17.705	36.463	176.6
242	3	19.866	19.821	36.695	189.3
138	4	24.756	24.726	36.779	184.2
101	5	26.369	26.346	36.692	187.5
51	6	27.090	27.118	−999.000	−999.0
4	7	27.076	27.075	36.459	193.1


WBTS AB1811 December 2018 R/V Atlantic Explorer
CTD Station 27 (CTD027)
Latitude 26.169 N Longitude 78.798 W
01-Dec-2018 14:40 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS-78)
Oxygen (umol/kg)
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS-78)
Potential Temperature (deg C)
Oxygen (umol/kg)
Salinity (PSS-78)
Oxygen (umol/kg)

WBTS AB1811 December 2018 R/V *Atlantic Explorer*
CTD Station 28 (CTD028)
Latitude 26.069N Longitude 78.850W
01-Dec-2018 16:13Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	27.033	27.032	36.500	193.8	0.004	23.838
10	27.029	27.027	36.499	193.8	0.041	23.839
20	27.026	27.022	36.500	193.9	0.081	23.841
30	27.027	27.020	36.501	193.9	0.122	23.842
50	27.031	27.020	36.501	194.0	0.203	23.843
75	27.036	27.019	36.503	193.7	0.305	23.844
100	27.028	27.005	36.514	191.7	0.407	23.857
125	26.719	26.690	36.502	189.4	0.509	23.949
150	24.652	24.619	36.801	168.6	0.604	24.819
200	21.226	21.187	36.816	181.5	0.730	25.825
250	19.399	19.353	36.657	186.9	0.833	26.197

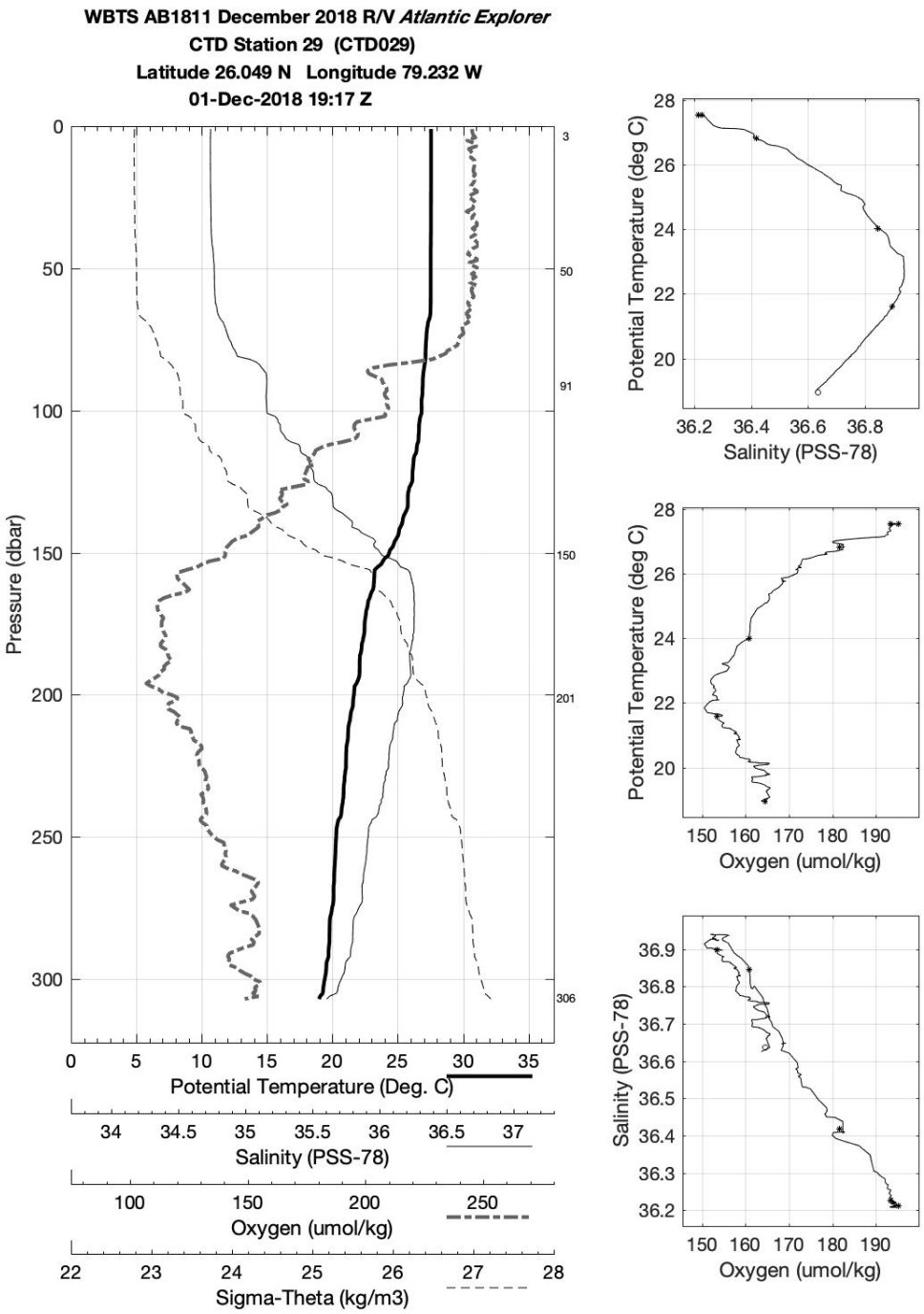
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
297	1	18.725	18.672	36.605	184.6
202	2	21.172	21.133	36.812	180.8
141	3	26.394	26.362	36.641	181.4
90	4	27.030	27.009	36.508	192.8
50	5	27.028	27.017	36.493	194.2
7	6	27.034	27.033	36.466	194.6


WBTS AB1811 December 2018 R/V Atlantic Explorer
CTD Station 28 (CTD028)
Latitude 26.069 N Longitude 78.850 W
01-Dec-2018 16:13 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS-78)
Oxygen (umol/kg)
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS-78)
Potential Temperature (deg C)
Oxygen (umol/kg)
Salinity (PSS-78)
Oxygen (umol/kg)

WBTS AB1811 December 2018 R/V *Atlantic Explorer*
CTD Station 29 (CTD029)
Latitude 26.049N Longitude 79.232W
01-Dec-2018 19:17Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	27.544	27.544	36.209	193.9	0.004	23.453
10	27.549	27.547	36.208	194.0	0.044	23.451
20	27.550	27.546	36.208	194.1	0.089	23.452
30	27.546	27.539	36.210	193.2	0.133	23.455
50	27.534	27.522	36.221	194.7	0.222	23.470
75	27.193	27.176	36.275	192.1	0.332	23.622
100	26.849	26.826	36.411	182.6	0.436	23.836
125	26.132	26.104	36.582	172.1	0.534	24.195
150	24.380	24.348	36.817	161.1	0.620	24.913
200	21.688	21.649	36.900	153.9	0.747	25.761
250	20.335	20.288	36.774	159.6	0.857	26.039
300	19.468	19.412	36.677	164.8	0.957	26.197

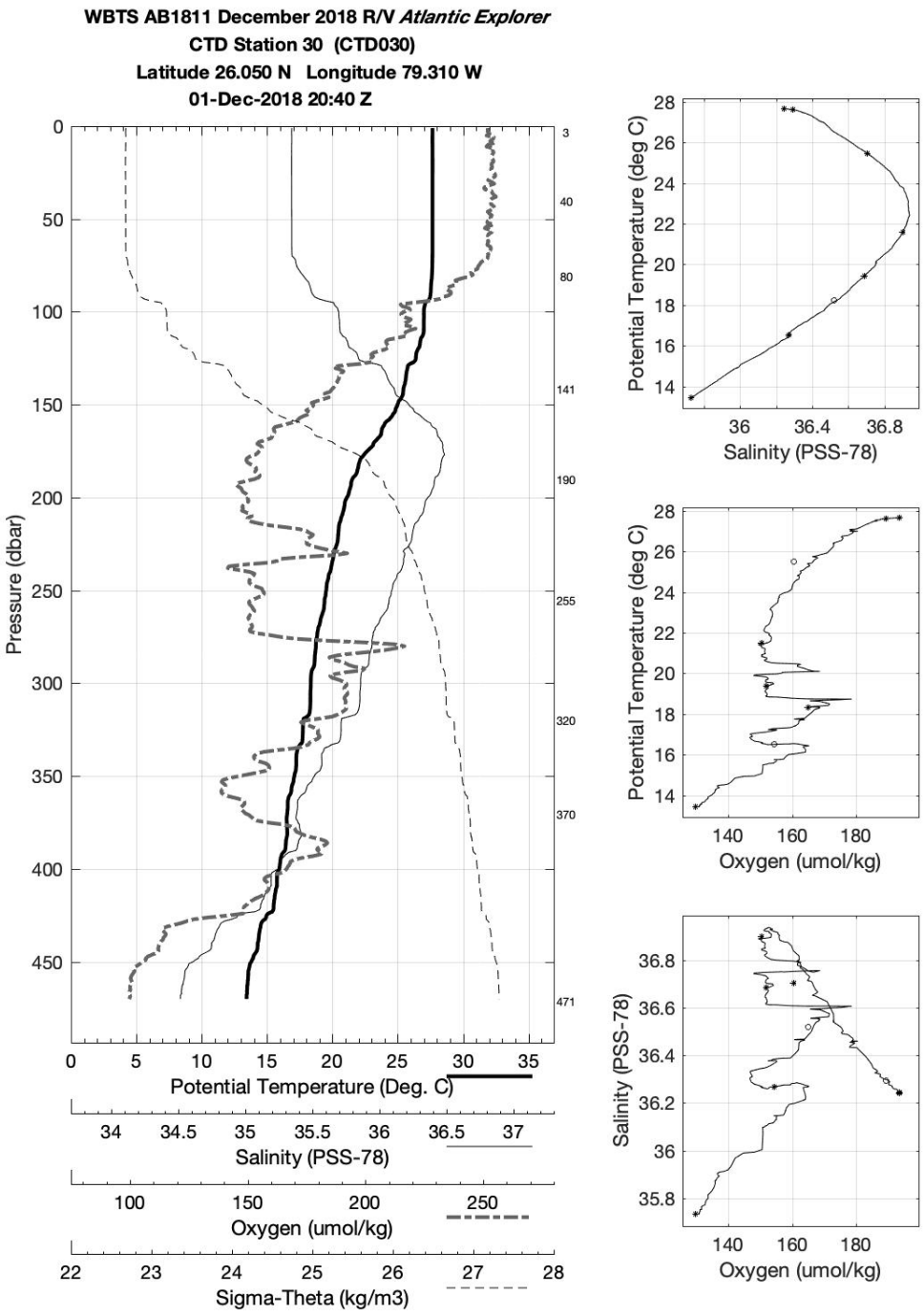
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
307	1	18.999	18.943	36.637	164.5
201	2	21.638	21.598	36.898	153.4
151	3	24.038	24.006	36.846	160.9
91	4	26.844	26.823	36.418	181.7
51	5	27.536	27.524	36.226	193.3
4	6	27.535	27.534	36.211	195.1


WBTS AB1811 December 2018 R/V Atlantic Explorer
CTD Station 29 (CTD029)
Latitude 26.049 N Longitude 79.232 W
01-Dec-2018 19:17 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS-78)
Oxygen (umol/kg)
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS-78)
Oxygen (umol/kg)

WBTS AB1811 December 2018 R/V *Atlantic Explorer*
CTD Station 30 (CTD030)
Latitude 26.050N Longitude 79.310W
01-Dec-2018 20:40Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	27.656	27.656	36.241	193.0	0.004	23.441
10	27.657	27.655	36.241	193.0	0.044	23.441
20	27.666	27.661	36.240	193.6	0.089	23.439
30	27.665	27.658	36.240	193.6	0.133	23.440
50	27.667	27.655	36.241	193.5	0.222	23.441
75	27.659	27.641	36.263	191.4	0.334	23.462
100	27.020	26.997	36.455	178.4	0.442	23.816
125	26.412	26.383	36.545	172.7	0.543	24.079
150	25.009	24.977	36.777	162.8	0.632	24.692
200	21.140	21.101	36.863	151.3	0.763	25.885
250	19.575	19.529	36.699	153.9	0.865	26.183
300	18.400	18.347	36.556	168.4	0.957	26.377
400	15.996	15.932	36.177	158.1	1.119	26.670

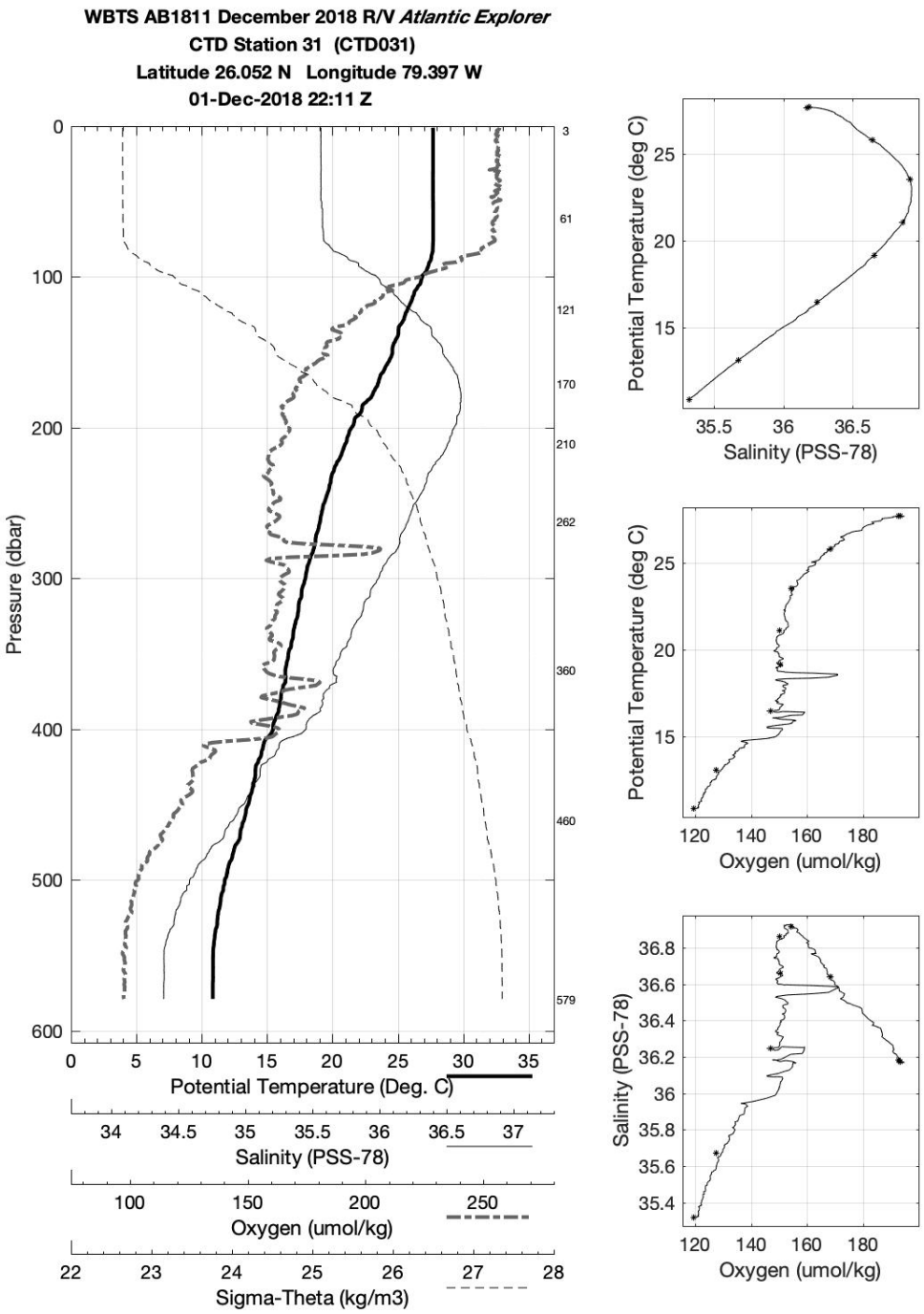
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
471	1	13.487	13.420	35.731	129.9
371	2	16.592	16.531	36.267	154.4
320	3	18.304	18.247	36.521	165.0
255	4	19.451	19.404	36.687	151.8
190	5	21.618	21.580	36.900	150.4
142	6	25.503	25.471	36.706	160.3
81	7	27.613	27.594	36.295	189.2
41	8	27.665	27.656	36.243	193.4
3	9	27.656	27.655	36.242	193.4


WBTS AB1811 December 2018 R/V Atlantic Explorer
CTD Station 30 (CTD030)
Latitude 26.050 N Longitude 79.310 W
01-Dec-2018 20:40 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS-78)
Oxygen (umol/kg)
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS-78)
Potential Temperature (deg C)
Oxygen (umol/kg)
Salinity (PSS-78)
Oxygen (umol/kg)

WBTS AB1811 December 2018 R/V *Atlantic Explorer*
CTD Station 31 (CTD031)
Latitude 26.052N Longitude 79.397W
01-Dec-2018 22:11Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	27.683	27.683	36.169	194.0	0.004	23.378
10	27.692	27.690	36.169	193.3	0.045	23.376
20	27.694	27.689	36.169	194.3	0.090	23.376
30	27.693	27.686	36.169	193.9	0.135	23.377
50	27.706	27.694	36.173	193.2	0.225	23.377
75	27.719	27.701	36.184	193.1	0.338	23.383
100	26.880	26.857	36.472	178.5	0.447	23.873
125	25.600	25.572	36.689	166.1	0.542	24.442
150	24.614	24.581	36.826	159.7	0.625	24.850
200	21.489	21.450	36.888	153.1	0.760	25.808
250	19.416	19.371	36.678	150.0	0.862	26.209
300	17.971	17.919	36.480	151.3	0.952	26.426
400	15.517	15.454	36.090	151.1	1.110	26.711
500	11.823	11.758	35.461	123.7	1.241	26.994

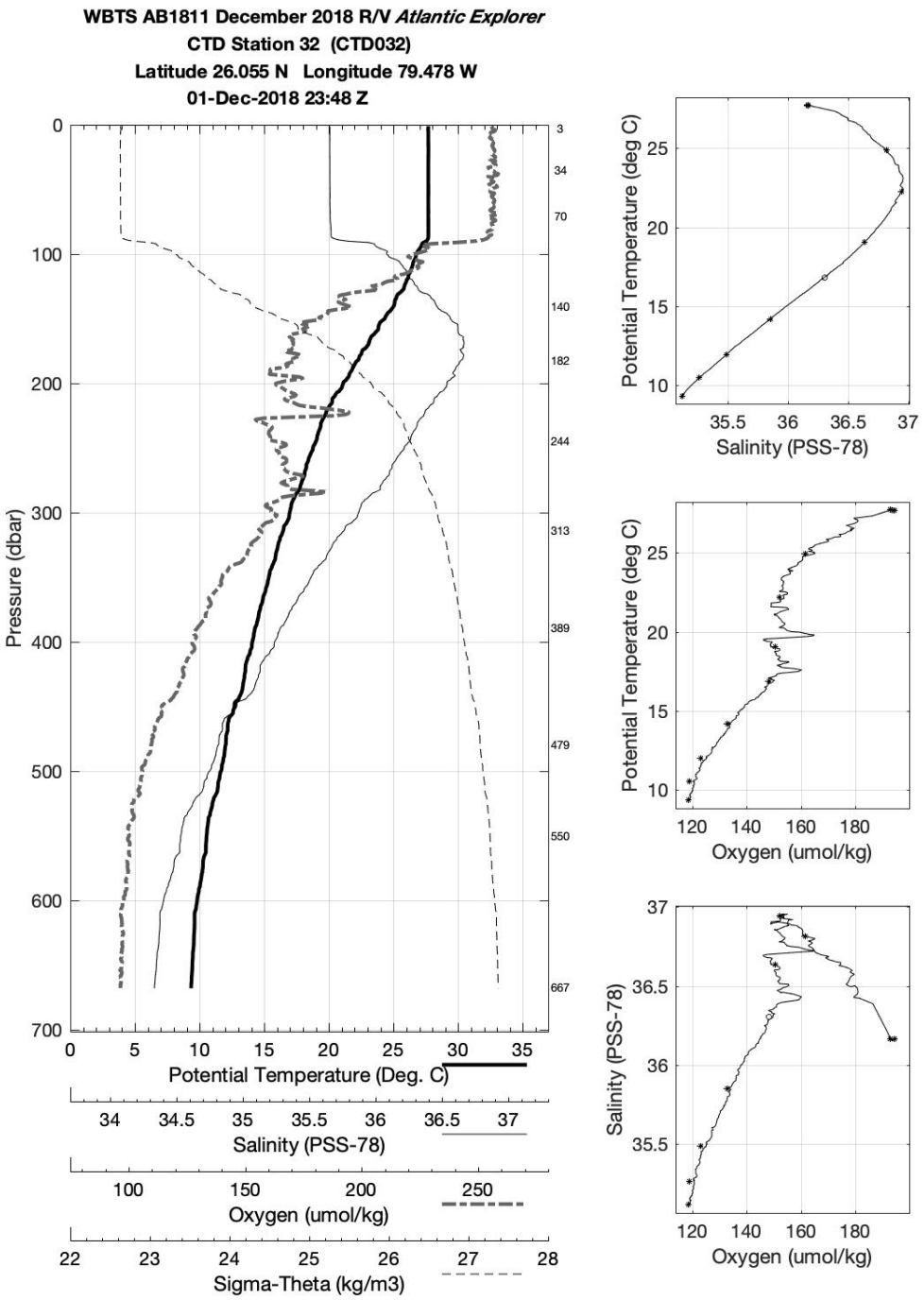
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
579	1	10.915	10.842	35.320	119.7
461	2	13.142	13.077	35.673	127.7
361	3	16.510	16.451	36.245	147.0
262	4	19.198	19.150	36.658	150.3
211	5	21.111	21.070	36.861	150.1
171	6	23.545	23.509	36.914	154.4
122	7	25.825	25.798	36.640	168.3
61	8	27.713	27.699	36.182	192.4
3	9	27.676	27.675	36.171	192.9


WBTS AB1811 December 2018 R/V Atlantic Explorer
CTD Station 31 (CTD031)
Latitude 26.052 N Longitude 79.397 W
01-Dec-2018 22:11 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS-78)
Oxygen (umol/kg)
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS-78)
Potential Temperature (deg C)
Oxygen (umol/kg)
Salinity (PSS-78)
Oxygen (umol/kg)

WBTS AB1811 December 2018 R/V *Atlantic Explorer*
CTD Station 32 (CTD032)
Latitude 26.055N Longitude 79.478W
01-Dec-2018 23:48Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	27.687	27.687	36.159	193.6	0.005	23.369
10	27.694	27.692	36.159	193.2	0.045	23.367
20	27.700	27.695	36.159	194.3	0.090	23.366
30	27.697	27.689	36.159	194.1	0.135	23.368
50	27.704	27.692	36.160	193.7	0.226	23.368
75	27.709	27.692	36.162	193.8	0.339	23.370
100	26.789	26.766	36.497	178.0	0.448	23.921
125	25.860	25.832	36.678	169.2	0.544	24.353
150	24.348	24.316	36.876	159.1	0.627	24.967
200	21.150	21.112	36.858	150.2	0.754	25.879
250	18.812	18.767	36.602	150.6	0.852	26.306
300	17.022	16.972	36.330	149.4	0.937	26.542
400	14.133	14.074	35.830	133.3	1.083	26.813
500	11.722	11.656	35.444	123.3	1.208	27.000
600	9.881	9.811	35.170	119.6	1.321	27.117

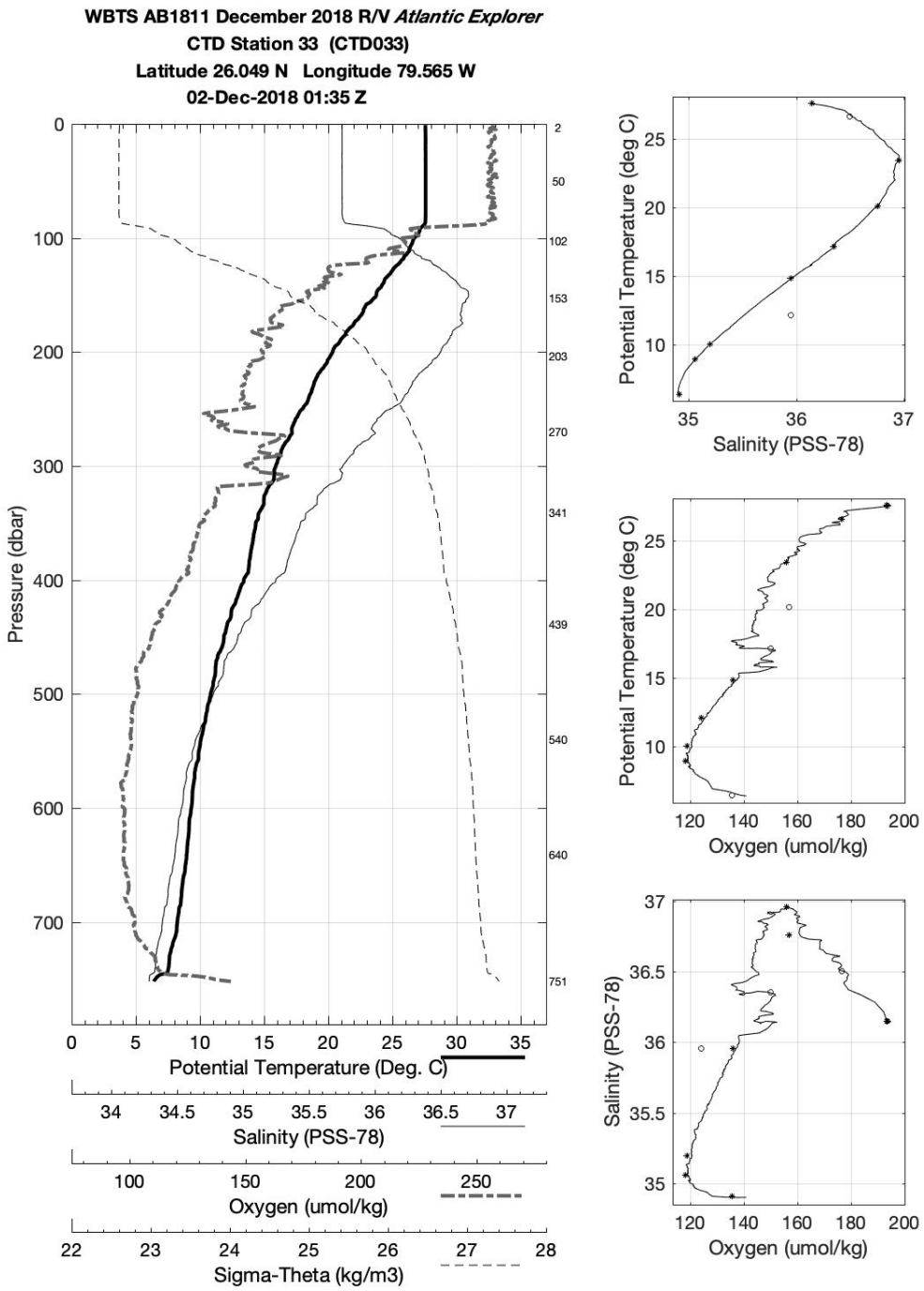
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
667	1	9.422	9.345	35.118	118.4
550	2	10.583	10.516	35.263	118.8
480	3	12.031	11.967	35.486	122.9
389	4	14.265	14.207	35.854	132.7
313	5	16.845	16.793	36.306	148.1
245	6	19.085	19.041	36.634	150.4
182	7	22.261	22.225	36.945	152.2
140	8	24.890	24.859	36.817	161.5
71	9	27.715	27.699	36.165	194.5
35	10	27.706	27.723	−999.000	−999.0
3	11	27.687	27.686	36.166	193.1


WBTS AB1811 December 2018 R/V Atlantic Explorer
CTD Station 32 (CTD032)
Latitude 26.055 N Longitude 79.478 W
01-Dec-2018 23:48 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS-78)
Oxygen (umol/kg)
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS-78)
Potential Temperature (deg C)
Oxygen (umol/kg)
Salinity (PSS-78)
Oxygen (umol/kg)

WBTS AB1811 December 2018 R/V *Atlantic Explorer*
CTD Station 33 (CTD033)
Latitude 26.049N Longitude 79.565W
02-Dec-2018 01:35Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	27.553	27.553	36.144	194.2	0.004	23.401
10	27.566	27.564	36.144	194.6	0.045	23.397
20	27.568	27.563	36.144	193.3	0.090	23.398
30	27.577	27.570	36.143	193.6	0.134	23.395
50	27.581	27.569	36.144	194.3	0.224	23.396
75	27.587	27.569	36.144	193.8	0.337	23.396
100	26.709	26.686	36.510	175.9	0.446	23.956
125	25.251	25.224	36.759	160.9	0.539	24.602
150	23.758	23.727	36.959	156.9	0.615	25.207
200	20.357	20.319	36.778	147.4	0.735	26.033
250	18.007	17.963	36.454	142.6	0.828	26.395
300	15.947	15.899	36.149	143.9	0.907	26.655
400	13.460	13.403	35.716	130.4	1.045	26.865
500	10.888	10.826	35.313	121.8	1.164	27.051
600	9.382	9.314	35.108	119.1	1.272	27.152
700	8.303	8.228	34.985	121.3	1.372	27.227

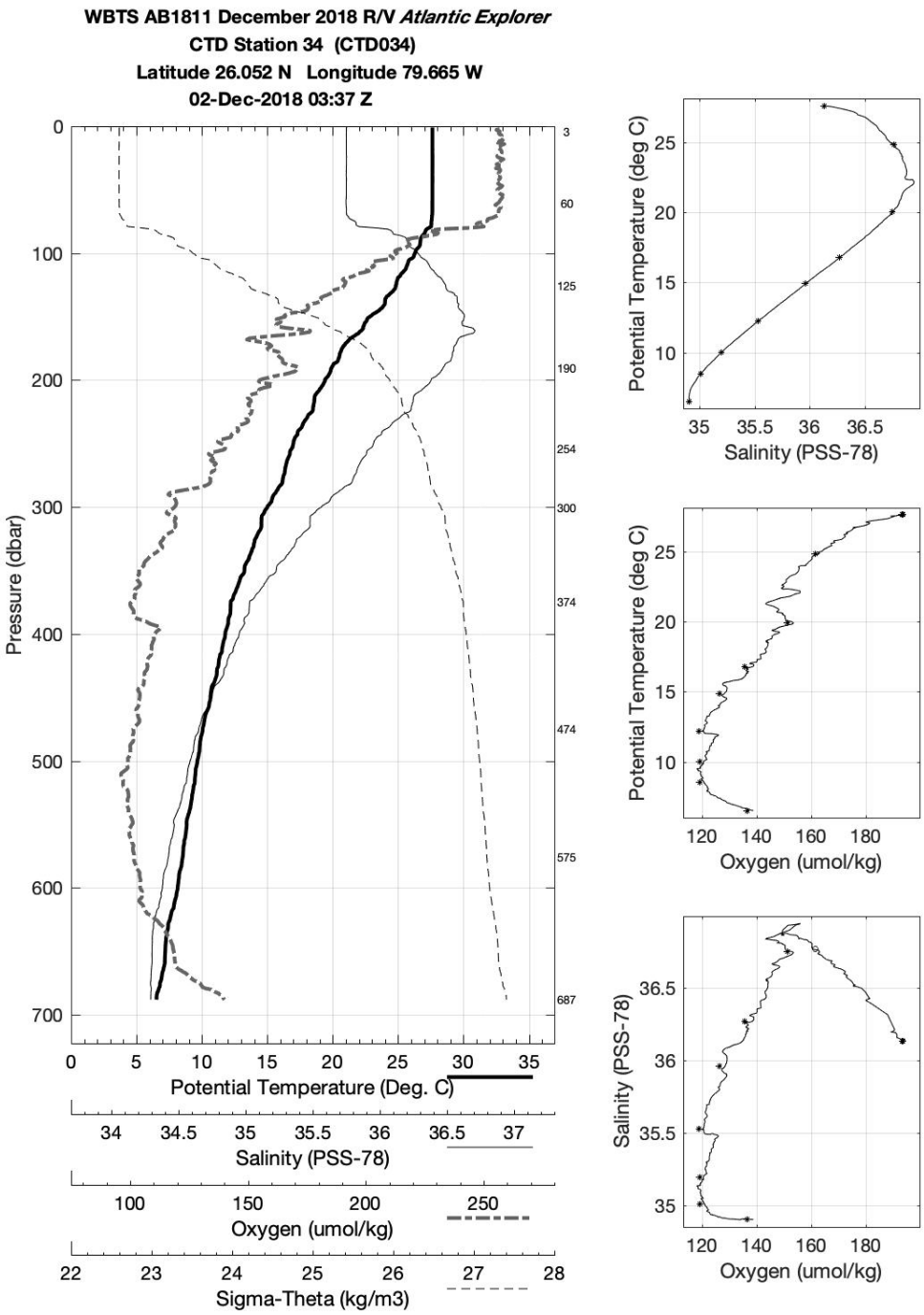
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
751	1	6.474	6.404	34.908	135.5
641	2	8.995	8.924	35.061	118.2
540	3	10.099	10.035	35.196	118.9
439	4	12.192	12.133	35.953	124.0
341	5	14.861	14.809	35.953	135.8
270	6	17.220	17.174	36.352	150.0
203	7	20.160	20.122	36.760	157.0
153	8	23.437	23.405	36.955	155.9
103	9	26.680	26.656	36.500	176.7
50	10	27.596	27.584	36.148	193.5
3	11	27.574	27.573	36.147	193.6


WBTS AB1811 December 2018 R/V Atlantic Explorer
CTD Station 33 (CTD033)
Latitude 26.049 N Longitude 79.565 W
02-Dec-2018 01:35 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS-78)
Oxygen (umol/kg)
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS-78)
Potential Temperature (deg C)
Oxygen (umol/kg)
Salinity (PSS-78)
Oxygen (umol/kg)

WBTS AB1811 December 2018 R/V *Atlantic Explorer*
CTD Station 34 (CTD034)
Latitude 26.052N Longitude 79.665W
02-Dec-2018 03:37Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	27.622	27.621	36.137	193.5	0.004	23.374
10	27.623	27.620	36.136	194.1	0.045	23.373
20	27.628	27.623	36.136	194.3	0.090	23.372
30	27.632	27.625	36.136	193.3	0.135	23.372
50	27.634	27.623	36.136	193.4	0.226	23.372
75	27.565	27.547	36.192	191.1	0.339	23.439
100	26.314	26.291	36.586	173.4	0.441	24.139
125	24.866	24.839	36.761	162.9	0.529	24.722
150	22.873	22.842	36.880	150.9	0.603	25.406
200	19.447	19.410	36.670	145.7	0.712	26.192
250	17.034	16.993	36.307	138.1	0.799	26.520
300	15.056	15.010	35.979	128.7	0.874	26.725
400	11.839	11.787	35.461	124.8	1.001	26.988
500	9.708	9.650	35.151	119.4	1.111	27.130
600	8.212	8.148	34.977	121.8	1.210	27.233

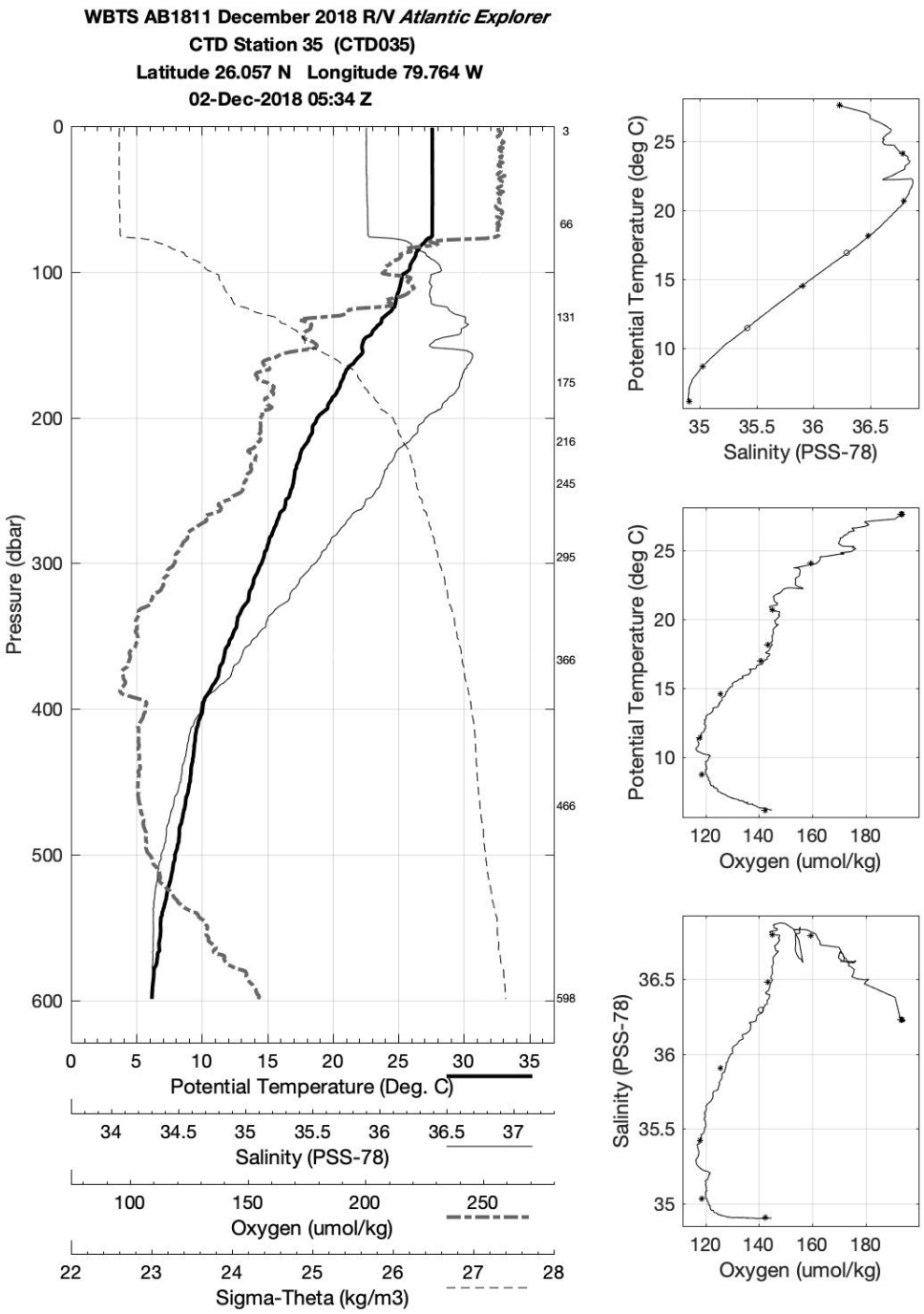
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
688	1	6.581	6.517	34.905	136.6
575	2	8.568	8.506	35.012	118.9
475	3	10.063	10.007	35.194	119.1
375	4	12.274	12.224	35.528	118.9
300	5	14.977	14.931	35.960	126.4
254	6	16.821	16.779	36.269	135.5
190	7	20.062	20.026	36.751	151.4
125	8	24.843	24.816	36.768	161.5
61	9	27.609	27.595	36.135	193.4
4	10	27.582	27.581	36.134	193.8


WBTS AB1811 December 2018 R/V Atlantic Explorer
CTD Station 34 (CTD034)
Latitude 26.052 N Longitude 79.665 W
02-Dec-2018 03:37 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS-78)
Oxygen (umol/kg)
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS-78)
Potential Temperature (deg C)
Oxygen (umol/kg)
Salinity (PSS-78)
Oxygen (umol/kg)

WBTS AB1811 December 2018 R/V *Atlantic Explorer*
CTD Station 35 (CTD035)
Latitude 26.057N Longitude 79.764W
02-Dec-2018 05:34Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	27.586	27.585	36.219	193.6	0.004	23.447
10	27.595	27.593	36.219	194.3	0.044	23.445
20	27.600	27.595	36.220	194.7	0.089	23.445
30	27.603	27.596	36.220	194.0	0.133	23.445
50	27.613	27.601	36.224	193.7	0.222	23.446
75	27.601	27.584	36.231	193.7	0.333	23.457
100	25.679	25.657	36.673	170.3	0.430	24.404
125	24.586	24.559	36.722	165.3	0.515	24.778
150	22.274	22.244	36.610	156.6	0.586	25.373
200	18.856	18.820	36.586	145.2	0.694	26.280
250	16.817	16.775	36.279	141.4	0.777	26.550
300	14.598	14.553	35.905	127.6	0.850	26.768
400	10.095	10.048	35.199	121.5	0.969	27.099
500	7.987	7.936	34.956	122.4	1.067	27.249

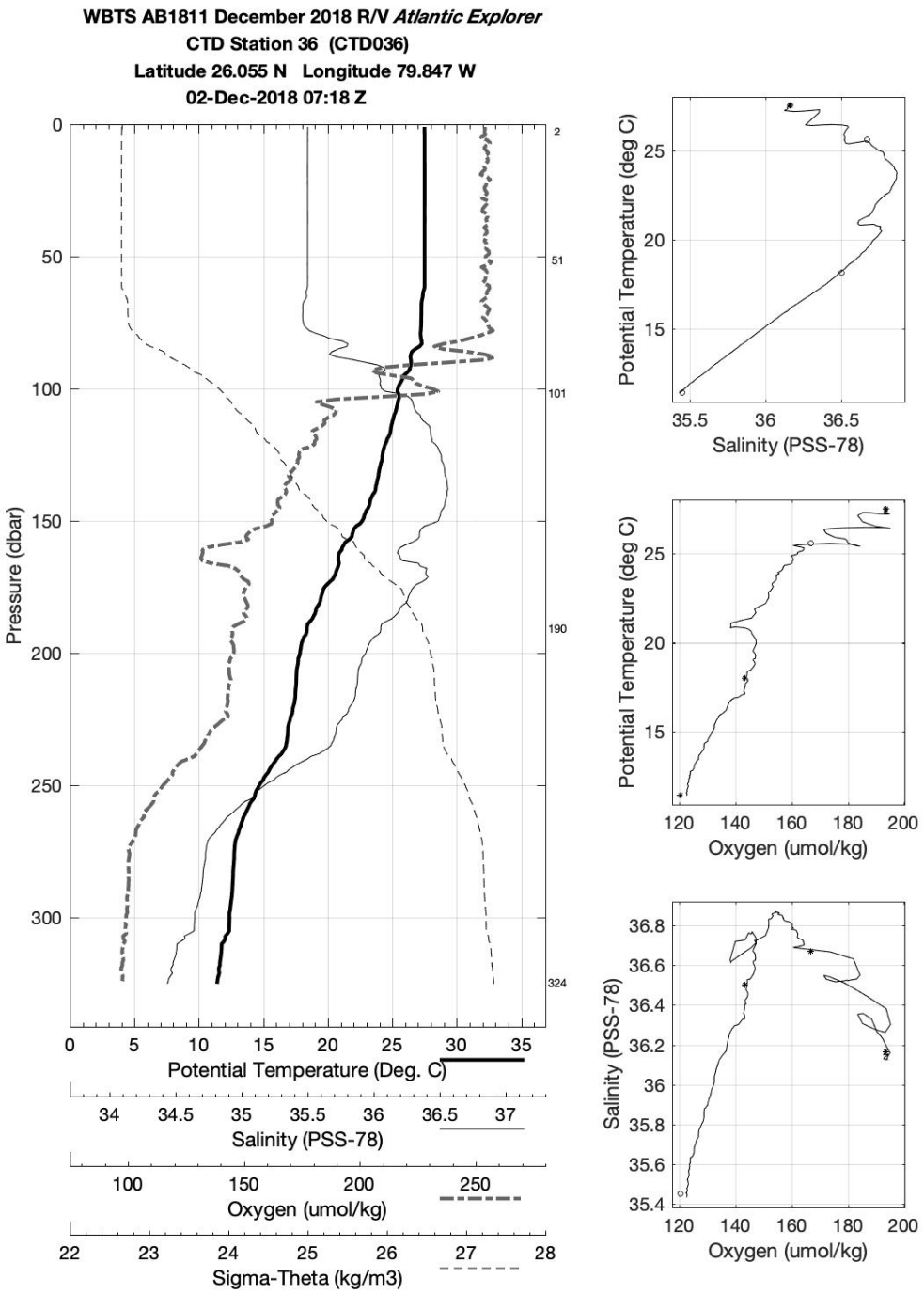
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
599	1	6.230	6.176	34.907	142.5
466	2	8.763	8.712	35.031	118.5
366	3	11.494	11.447	35.422	117.9
295	4	14.566	14.522	35.904	125.6
245	5	16.988	16.947	36.291	140.6
216	6	18.168	18.131	36.480	143.5
175	7	20.713	20.679	36.792	145.1
131	8	24.171	24.143	36.787	159.4
67	9	27.609	27.593	36.230	193.6
3	10	27.601	27.600	36.228	193.4


WBTS AB1811 December 2018 R/V Atlantic Explorer
CTD Station 35 (CTD035)
Latitude 26.057 N Longitude 79.764 W
02-Dec-2018 05:34 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS-78)
Oxygen (umol/kg)
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS-78)
Potential Temperature (deg C)
Oxygen (umol/kg)
Salinity (PSS-78)
Oxygen (umol/kg)

WBTS AB1811 December 2018 R/V *Atlantic Explorer*
CTD Station 36 (CTD036)
Latitude 26.055N Longitude 79.847W
02-Dec-2018 07:18Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	27.495	27.495	36.152	193.4	0.004	23.426
10	27.505	27.503	36.152	193.7	0.045	23.423
20	27.512	27.507	36.152	193.9	0.089	23.422
30	27.513	27.506	36.152	193.9	0.134	23.422
50	27.516	27.505	36.152	193.6	0.223	23.423
75	27.260	27.243	36.129	193.9	0.335	23.491
100	25.440	25.418	36.530	183.1	0.435	24.370
125	24.259	24.233	36.836	157.1	0.518	24.963
150	22.692	22.662	36.821	151.9	0.589	25.413
200	17.874	17.839	36.449	144.4	0.691	26.422
250	14.715	14.678	35.930	130.6	0.769	26.760
300	12.418	12.377	35.574	123.4	0.830	26.962

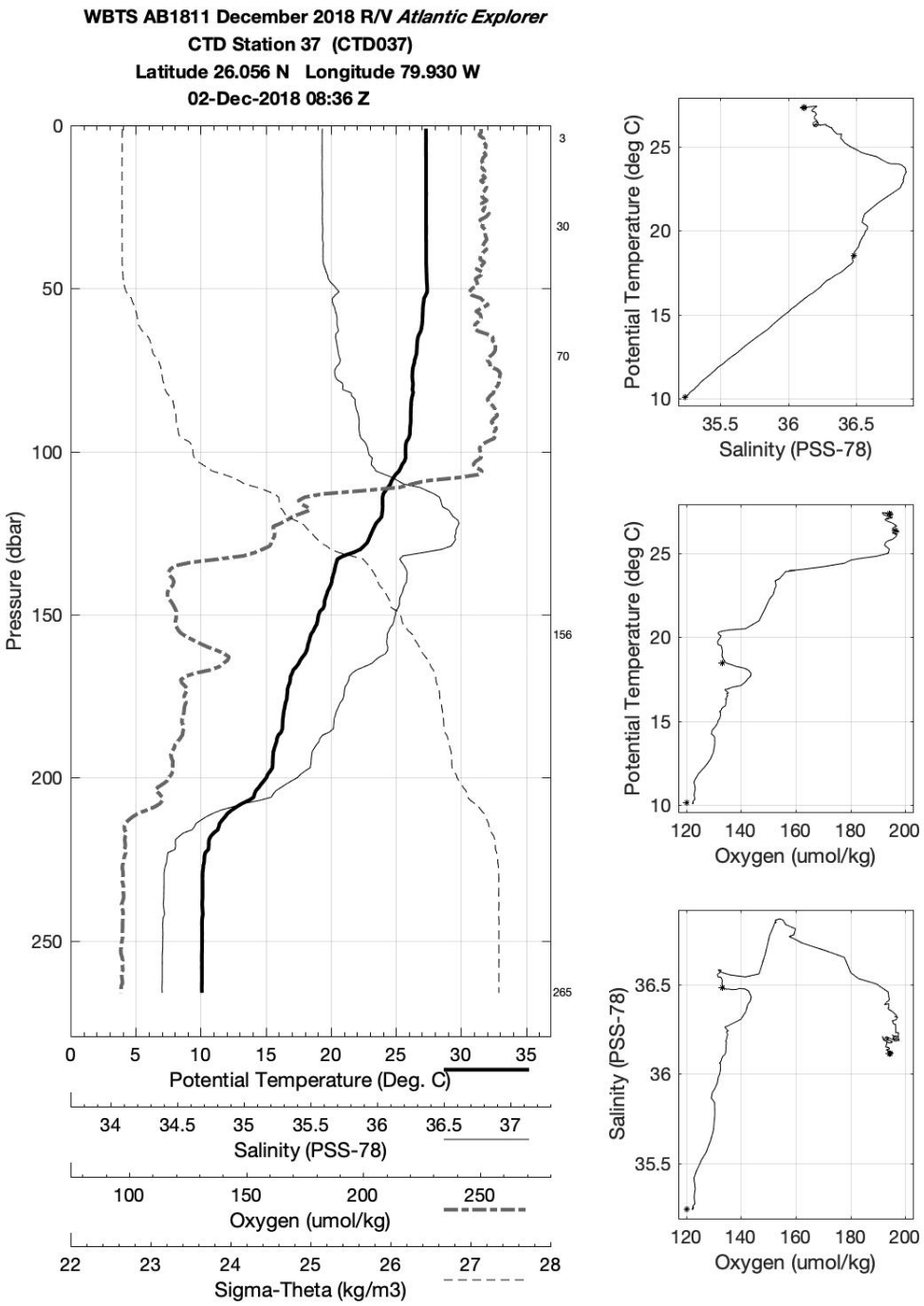
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
325	1	11.469	11.428	35.450	120.6
191	2	18.170	18.137	36.502	143.3
102	3	25.650	25.627	36.671	166.8
51	4	27.529	27.517	36.163	193.5
3	5	27.516	27.515	36.163	193.6


WBTS AB1811 December 2018 R/V Atlantic Explorer
CTD Station 36 (CTD036)
Latitude 26.055 N Longitude 79.847 W
02-Dec-2018 07:18 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS-78)
Oxygen (umol/kg)
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS-78)
Potential Temperature (deg C)
Oxygen (umol/kg)
Salinity (PSS-78)
Oxygen (umol/kg)

WBTS AB1811 December 2018 R/V *Atlantic Explorer*
CTD Station 37 (CTD037)
Latitude 26.056N Longitude 79.930W
02-Dec-2018 08:36Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	27.306	27.306	36.117	194.0	0.004	23.461
10	27.313	27.310	36.117	194.4	0.044	23.460
20	27.317	27.313	36.118	194.7	0.088	23.459
30	27.320	27.313	36.118	194.5	0.133	23.460
50	27.410	27.399	36.193	192.2	0.221	23.488
75	26.294	26.278	36.185	197.3	0.327	23.841
100	25.757	25.735	36.369	193.9	0.427	24.149
125	23.142	23.116	36.849	152.8	0.507	25.303
150	19.090	19.063	36.518	133.1	0.562	26.166
200	15.081	15.050	35.981	131.7	0.641	26.717
250	10.135	10.106	35.245	122.4	0.694	27.125

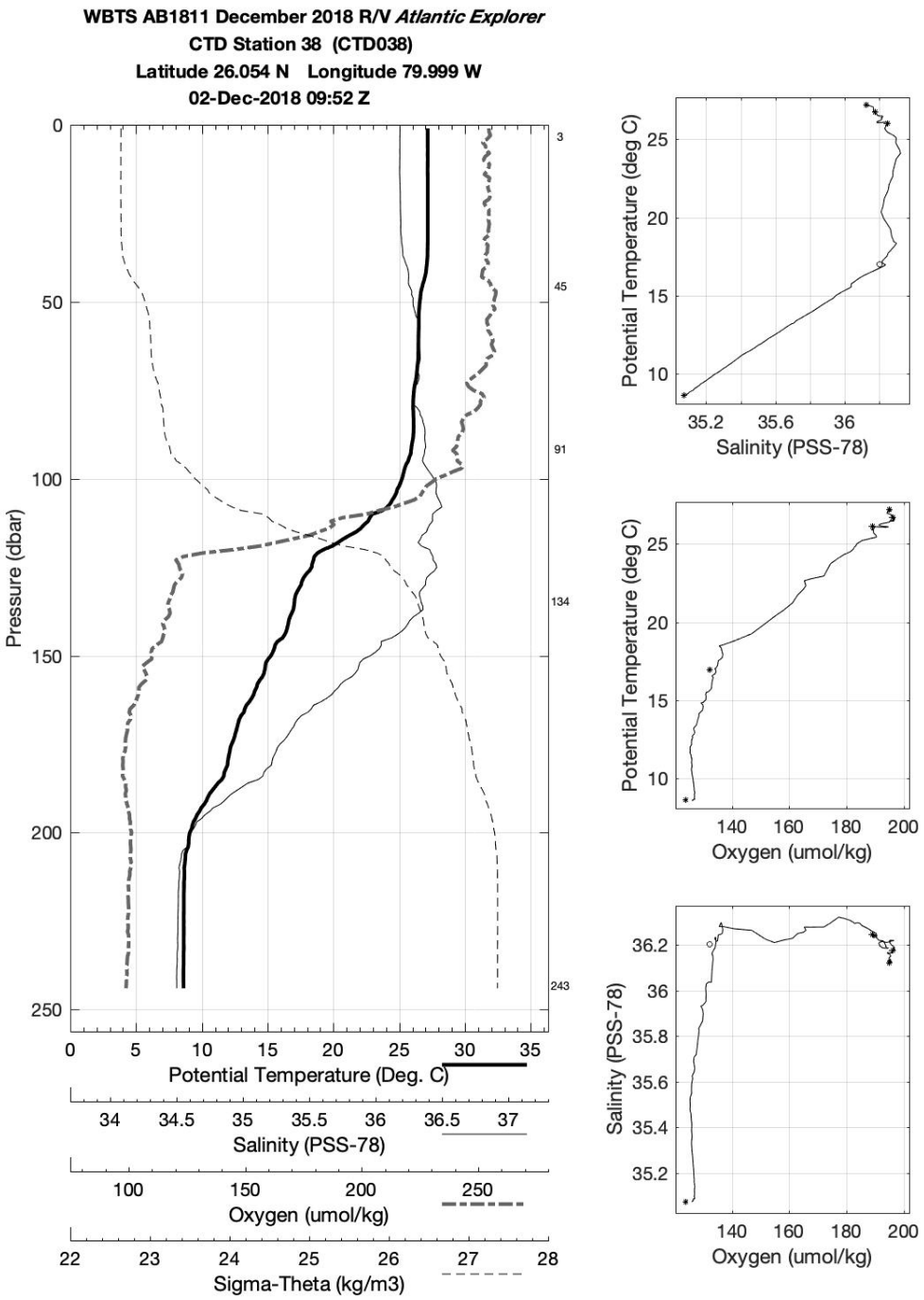
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
266	1	10.136	10.105	35.241	120.2
156	2	18.529	18.502	36.482	133.3
71	3	26.357	26.341	36.199	196.7
31	4	27.326	27.318	36.114	194.3
4	5	27.318	27.317	36.112	194.4


WBTS AB1811 December 2018 R/V Atlantic Explorer
CTD Station 37 (CTD037)
Latitude 26.056 N Longitude 79.930 W
02-Dec-2018 08:36 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS-78)
Oxygen (umol/kg)
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS-78)
Potential Temperature (deg C)
Oxygen (umol/kg)
Salinity (PSS-78)
Oxygen (umol/kg)

WBTS AB1811 December 2018 R/V *Atlantic Explorer*
CTD Station 38 (CTD038)
Latitude 26.054N Longitude 79.999W
02-Dec-2018 09:52Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	27.166	27.166	36.125	195.5	0.004	23.512
10	27.170	27.168	36.124	194.5	0.044	23.511
20	27.177	27.172	36.126	195.8	0.087	23.511
30	27.179	27.172	36.129	195.4	0.131	23.513
50	26.576	26.564	36.186	196.4	0.217	23.751
75	26.139	26.122	36.187	192.5	0.320	23.891
100	25.238	25.216	36.285	185.4	0.418	24.246
125	18.370	18.348	36.298	136.3	0.489	26.180
150	15.279	15.256	35.986	131.0	0.529	26.676
200	9.110	9.088	35.137	127.1	0.586	27.211

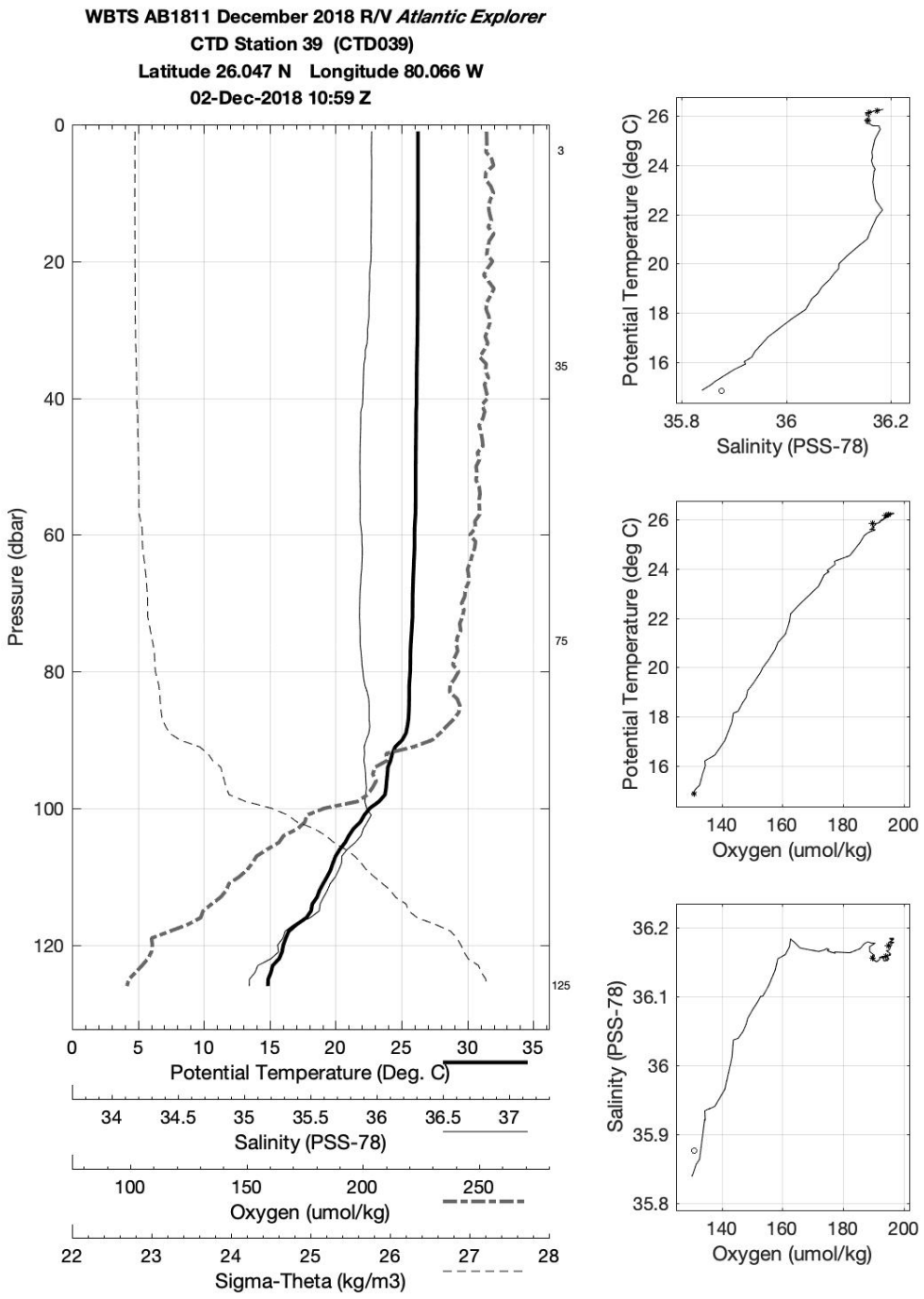
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
243	1	8.636	8.611	35.074	123.9
135	2	17.031	17.009	36.203	132.2
92	3	26.014	25.993	36.246	188.9
45	4	26.760	26.749	36.176	196.1
3	5	27.181	27.180	36.123	195.0


WBTS AB1811 December 2018 R/V Atlantic Explorer
CTD Station 38 (CTD038)
Latitude 26.054 N Longitude 79.999 W
02-Dec-2018 09:52 Z
Pressure (dbar)
0
50
100
150
200
250
3
45
91
134
243
0 5 10 15 20 25 30 35
Potential Temperature (Deg. C)
34 34.5 35 35.5 36 36.5 37
Salinity (PSS-78)
100 150 200 250
Oxygen (umol/kg)
22 23 24 25 26 27 28
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
10 15 20 25
35.2 35.6 36
Salinity (PSS-78)
Potential Temperature (deg C)
10 15 20 25
140 160 180 200
Oxygen (umol/kg)
Salinity (PSS-78)
35.2 35.4 35.6 35.8 36 36.2
140 160 180 200
Oxygen (umol/kg)

WBTS AB1811 December 2018 R/V *Atlantic Explorer*
CTD Station 39 (CTD039)
Latitude 26.047N Longitude 80.066W
02-Dec-2018 10:59Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	26.245	26.245	36.185	195.5	0.004	23.851
10	26.250	26.248	36.184	196.7	0.040	23.849
20	26.243	26.239	36.183	196.6	0.081	23.851
30	26.209	26.202	36.173	195.7	0.121	23.855
50	26.083	26.072	36.152	193.6	0.202	23.880
75	25.755	25.738	36.152	190.1	0.303	23.985
100	22.604	22.584	36.170	165.9	0.395	24.941
125	14.894	14.875	35.840	130.4	0.447	26.647

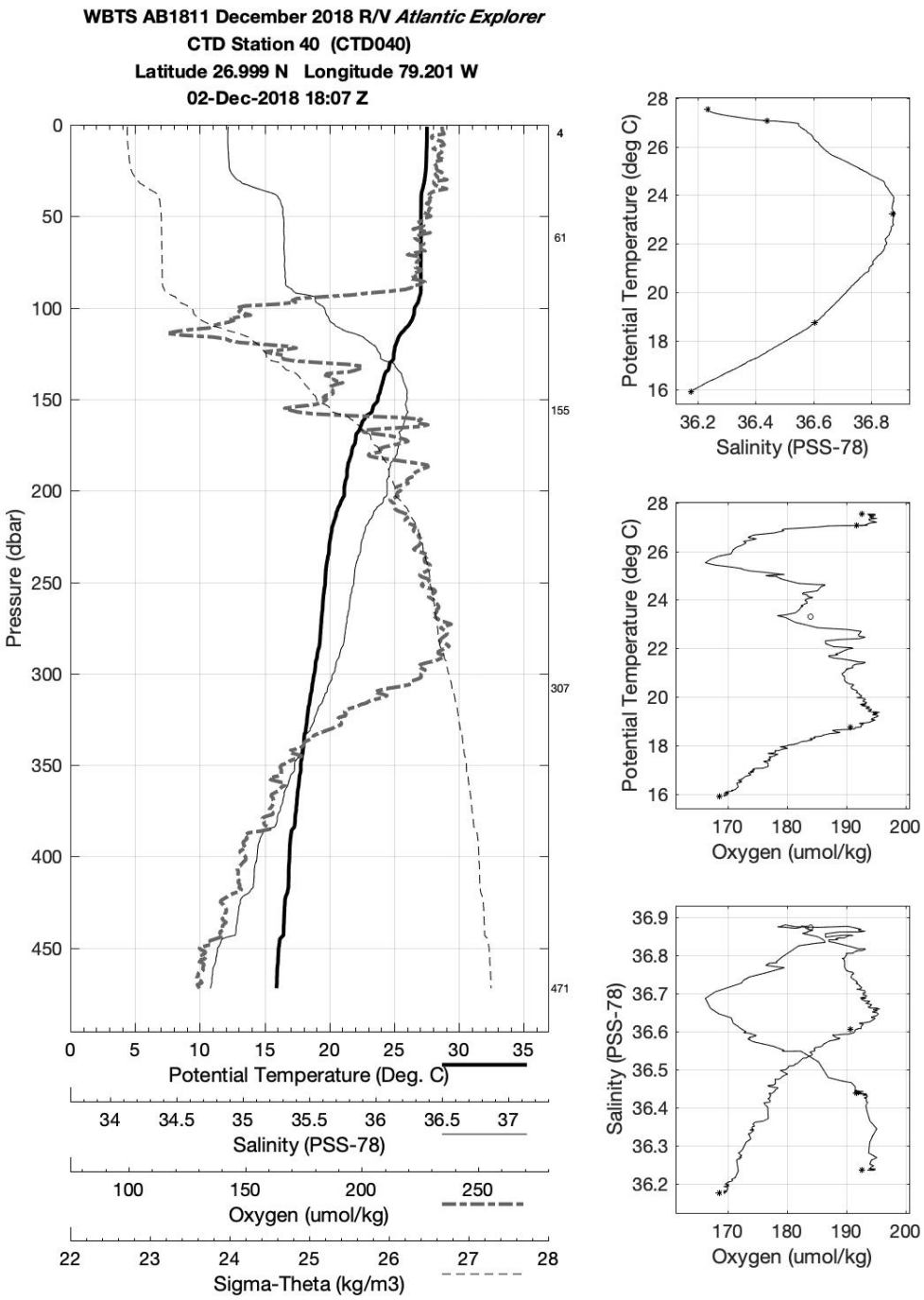
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
126	1	14.852	14.833	35.876	131.1
75	2	25.834	25.817	36.156	189.7
35	3	26.146	26.138	36.158	194.0
4	4	26.192	26.191	36.174	194.9


WBTS AB1811 December 2018 R/V Atlantic Explorer
CTD Station 39 (CTD039)
Latitude 26.047 N Longitude 80.066 W
02-Dec-2018 10:59 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS-78)
Oxygen (umol/kg)
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS-78)
Potential Temperature (deg C)
Oxygen (umol/kg)
Salinity (PSS-78)
Oxygen (umol/kg)

WBTS AB1811 December 2018 R/V *Atlantic Explorer*
CTD Station 40 (CTD040)
Latitude 26.999N Longitude 79.201W
02-Dec-2018 18:07Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	27.526	27.526	36.238	194.6	0.004	23.481
10	27.516	27.514	36.237	194.7	0.044	23.484
20	27.477	27.473	36.240	194.0	0.088	23.500
30	27.357	27.350	36.269	195.1	0.132	23.561
50	27.077	27.065	36.434	193.5	0.215	23.778
75	27.071	27.054	36.439	192.0	0.319	23.785
100	26.592	26.570	36.581	173.4	0.421	24.046
125	24.995	24.968	36.779	177.1	0.511	24.696
150	23.769	23.737	36.877	182.7	0.587	25.141
200	21.181	21.142	36.805	190.3	0.710	25.830
250	19.716	19.670	36.686	193.0	0.813	26.136
300	18.879	18.825	36.613	192.5	0.909	26.300
400	16.984	16.917	36.341	174.3	1.079	26.564

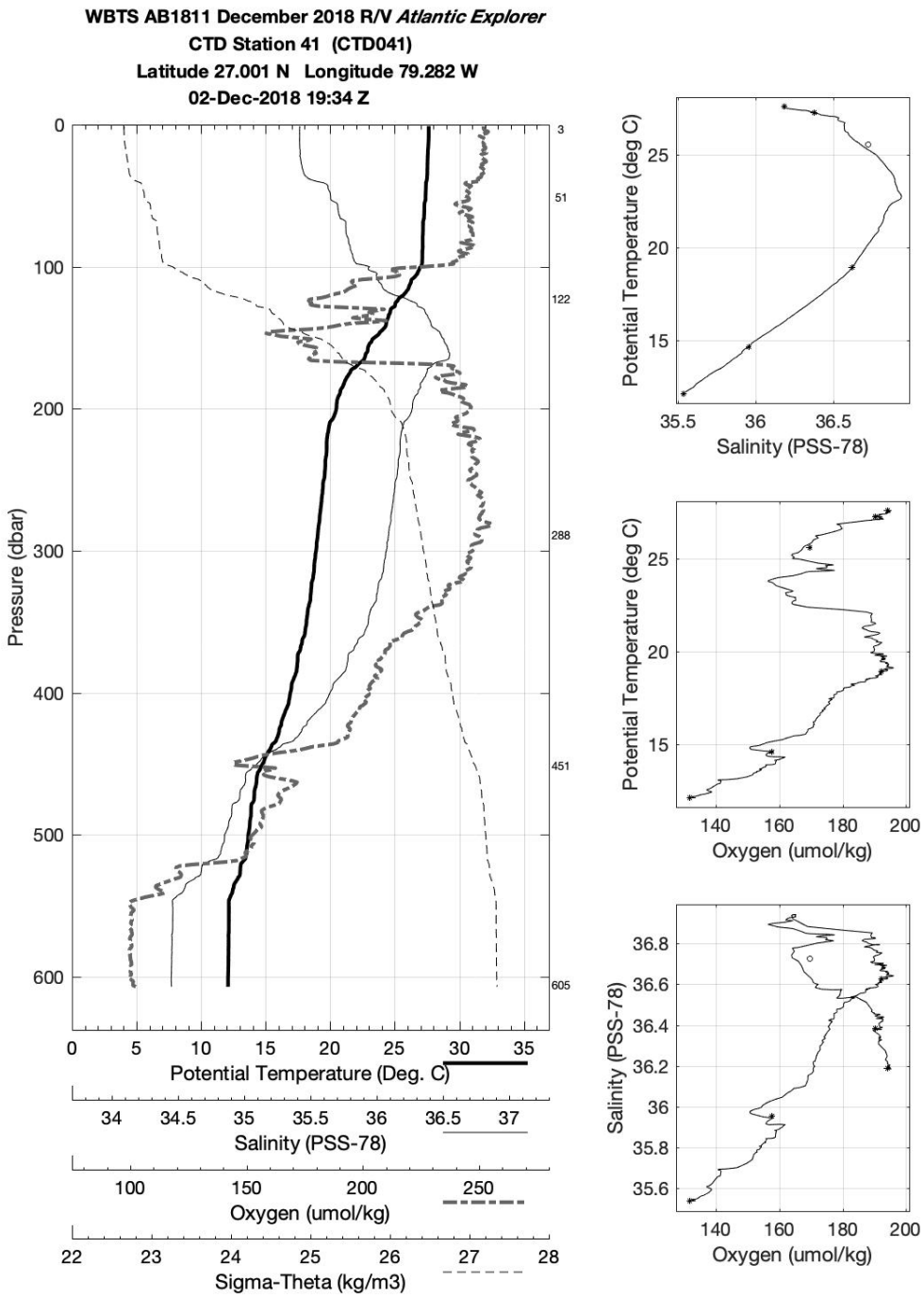
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
4	1	27.526	27.528	−999.000	−999.0
472	2	15.992	15.916	36.176	168.6
308	3	18.811	18.756	36.605	190.6
156	4	23.256	23.224	36.874	183.9
61	5	27.068	27.054	36.440	191.8
4	6	27.532	27.531	36.236	192.6


WBTS AB1811 December 2018 R/V *Atlantic Explorer*
CTD Station 40 (CTD040)
Latitude 26.999 N Longitude 79.201 W
02-Dec-2018 18:07 Z
Pressure (dbar)
0
50
100
150
200
250
300
350
400
450
4
61
155
307
471
0 5 10 15 20 25 30 35
Potential Temperature (Deg. C)
34 34.5 35 35.5 36 36.5 37
Salinity (PSS-78)
100 150 200 250
Oxygen (umol/kg)
22 23 24 25 26 27 28
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
16 18 20 22 24 26 28
36.2 36.4 36.6 36.8
Salinity (PSS-78)
Potential Temperature (deg C)
16 18 20 22 24 26 28
170 180 190 200
Oxygen (umol/kg)
Salinity (PSS-78)
36.2 36.3 36.4 36.5 36.6 36.7 36.8 36.9
170 180 190 200
Oxygen (umol/kg)

WBTS AB1811 December 2018 R/V *Atlantic Explorer*
CTD Station 41 (CTD041)
Latitude 27.001N Longitude 79.282W
02-Dec-2018 19:34Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	27.630	27.630	36.186	194.5	0.004	23.408
10	27.626	27.624	36.185	194.8	0.045	23.409
20	27.570	27.566	36.188	195.1	0.089	23.430
30	27.536	27.529	36.198	194.0	0.134	23.450
50	27.400	27.388	36.341	191.3	0.221	23.603
75	27.203	27.186	36.419	192.3	0.327	23.727
100	27.037	27.014	36.538	184.1	0.431	23.872
125	25.125	25.098	36.762	164.7	0.525	24.643
150	23.443	23.412	36.904	161.8	0.602	25.258
200	20.512	20.474	36.753	192.2	0.720	25.972
250	19.554	19.508	36.670	191.9	0.819	26.166
300	18.960	18.906	36.622	192.7	0.914	26.286
400	16.977	16.910	36.338	174.3	1.087	26.564
500	13.721	13.649	35.807	154.0	1.230	26.885
600	12.171	12.090	35.539	132.6	1.355	26.991

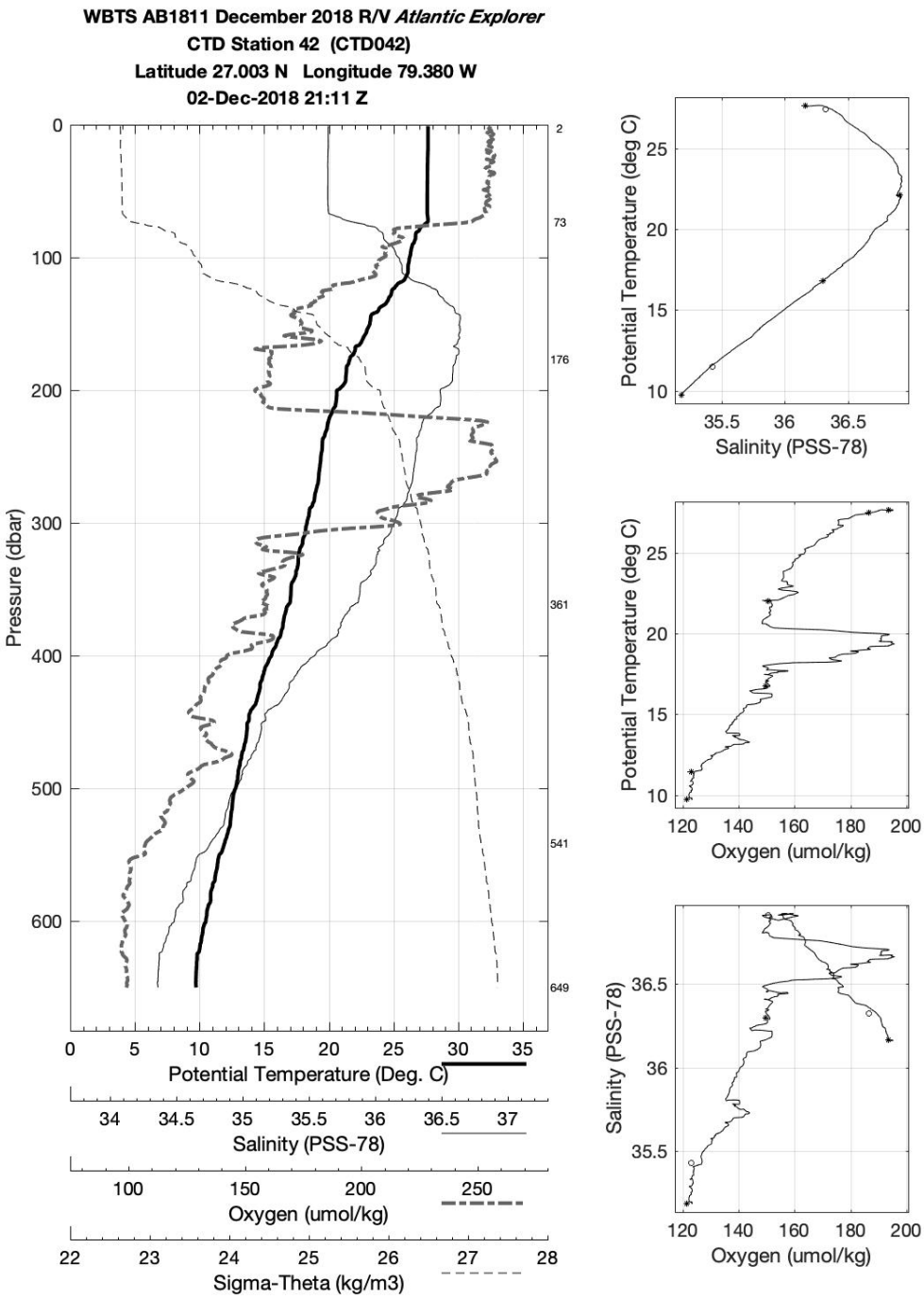
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
606	1	12.171	12.089	35.539	131.7
451	2	14.675	14.607	35.956	157.6
289	3	18.999	18.947	36.624	192.3
122	4	25.584	25.556	36.727	169.7
51	5	27.297	27.285	36.382	190.4
3	6	27.632	27.631	36.187	194.1


WBTS AB1811 December 2018 R/V Atlantic Explorer
CTD Station 41 (CTD041)
Latitude 27.001 N Longitude 79.282 W
02-Dec-2018 19:34 Z
Pressure (dbar)
0
100
200
300
400
500
600
3
51
122
288
451
605
0 5 10 15 20 25 30 35
Potential Temperature (Deg. C)
34 34.5 35 35.5 36 36.5 37
Salinity (PSS-78)
100 150 200 250
Oxygen (umol/kg)
22 23 24 25 26 27 28
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
25
20
15
35.5 36 36.5
Salinity (PSS-78)
Potential Temperature (deg C)
25
20
15
140 160 180 200
Oxygen (umol/kg)
Salinity (PSS-78)
36.8
36.6
36.4
36.2
36
35.8
35.6
140 160 180 200
Oxygen (umol/kg)

WBTS AB1811 December 2018 R/V *Atlantic Explorer*
CTD Station 42 (CTD042)
Latitude 27.003N Longitude 79.380W
02-Dec-2018 21:11Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	27.673	27.673	36.164	194.5	0.004	23.377
10	27.673	27.671	36.163	194.0	0.045	23.377
20	27.670	27.666	36.163	194.6	0.090	23.379
30	27.640	27.633	36.161	194.7	0.135	23.388
50	27.629	27.618	36.161	194.0	0.225	23.393
75	27.435	27.418	36.372	185.4	0.337	23.617
100	26.269	26.247	36.567	173.5	0.436	24.138
125	24.904	24.877	36.790	161.7	0.528	24.732
150	23.201	23.170	36.917	157.5	0.601	25.339
200	20.667	20.629	36.805	148.3	0.720	25.970
250	19.430	19.385	36.664	195.0	0.820	26.194
300	18.364	18.311	36.544	176.7	0.913	26.378
400	15.622	15.559	36.085	142.8	1.076	26.684
500	12.852	12.783	35.632	134.6	1.210	26.927
600	10.560	10.486	35.281	122.9	1.329	27.087

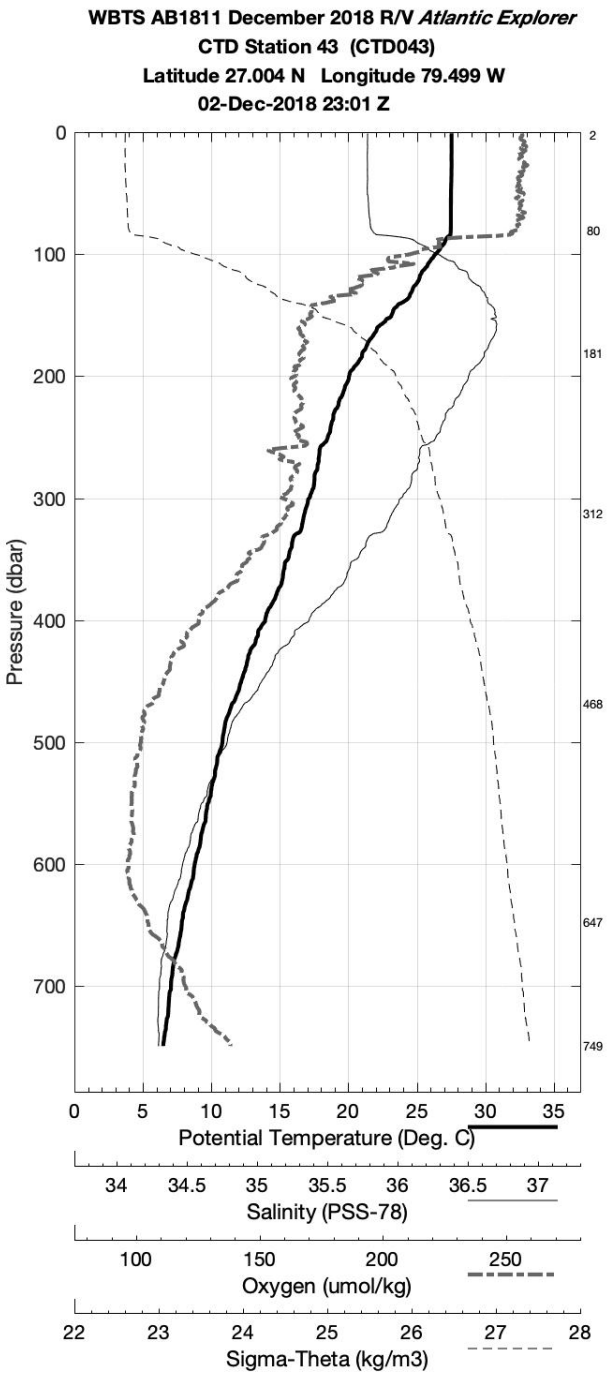
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
650	1	9.829	9.753	35.186	121.3
541	2	11.581	11.510	35.430	123.1
361	3	16.854	16.794	36.298	149.5
177	4	22.145	22.110	36.909	150.5
73	5	27.459	27.442	36.324	186.6
3	6	27.669	27.668	36.163	193.6

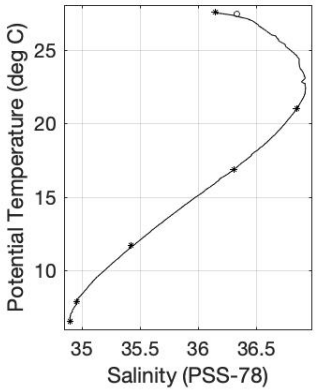

WBTS AB1811 December 2018 R/V Atlantic Explorer
CTD Station 42 (CTD042)
Latitude 27.003 N Longitude 79.380 W
02-Dec-2018 21:11 Z
Pressure (dbar)
0
100
200
300
400
500
600
2
73
176
361
541
649
0 5 10 15 20 25 30 35
Potential Temperature (Deg. C)
34 34.5 35 35.5 36 36.5 37
Salinity (PSS-78)
100 150 200 250
Oxygen (umol/kg)
22 23 24 25 26 27 28
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
10 15 20 25
35.5 36 36.5
Salinity (PSS-78)
Potential Temperature (deg C)
10 15 20 25
120 140 160 180 200
Oxygen (umol/kg)
Salinity (PSS-78)
35.5 36 36.5
120 140 160 180 200
Oxygen (umol/kg)

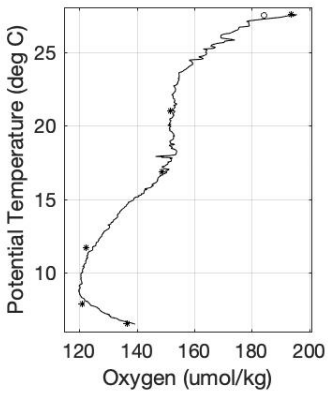
WBTS AB1811 December 2018 R/V *Atlantic Explorer*
CTD Station 43 (CTD043)
Latitude 27.004N Longitude 79.499W
02-Dec-2018 23:01Z

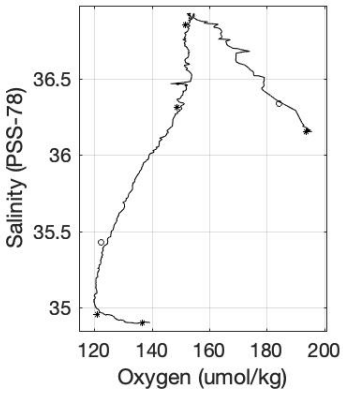
Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	27.536	27.536	36.155	194.7	0.004	23.415
10	27.539	27.537	36.154	194.3	0.045	23.414
20	27.538	27.533	36.153	194.7	0.089	23.415
30	27.539	27.532	36.154	194.6	0.134	23.415
50	27.510	27.498	36.153	195.1	0.223	23.426
75	27.503	27.485	36.170	194.5	0.335	23.443
100	26.398	26.375	36.574	173.5	0.441	24.103
125	24.947	24.920	36.807	164.4	0.528	24.732
150	23.189	23.157	36.920	154.6	0.602	25.345
200	20.088	20.051	36.759	151.6	0.715	26.091
250	18.538	18.494	36.564	152.3	0.808	26.347
300	17.198	17.147	36.354	149.2	0.892	26.519
400	13.988	13.930	35.804	133.4	1.039	26.823
500	10.866	10.803	35.313	122.4	1.161	27.055
600	8.849	8.783	35.046	120.0	1.267	27.189
700	7.120	7.051	34.908	130.8	1.359	27.339

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
749	1	6.576	6.505	34.903	136.6
648	2	7.928	7.861	34.953	121.2
469	3	11.729	11.668	35.429	122.2
312	4	16.894	16.842	36.311	148.6
182	5	21.056	21.021	36.853	151.8
81	6	27.463	27.444	36.338	184.3
2	7	27.548	27.548	36.154	193.6


WBTS AB1811 December 2018 R/V Atlantic Explorer
CTD Station 43 (CTD043)
Latitude 27.004 N Longitude 79.499 W
02-Dec-2018 23:01 Z
Pressure (dbar)
0
100
200
300
400
500
600
700
2
80
181
312
468
647
749
0 5 10 15 20 25 30 35
Potential Temperature (Deg. C)
34 34.5 35 35.5 36 36.5 37
Salinity (PSS-78)
100 150 200 250
Oxygen (umol/kg)
22 23 24 25 26 27 28
Sigma-Theta (kg/m3)


Potential Temperature (deg C)
25
20
15
10
35 35.5 36 36.5
Salinity (PSS-78)

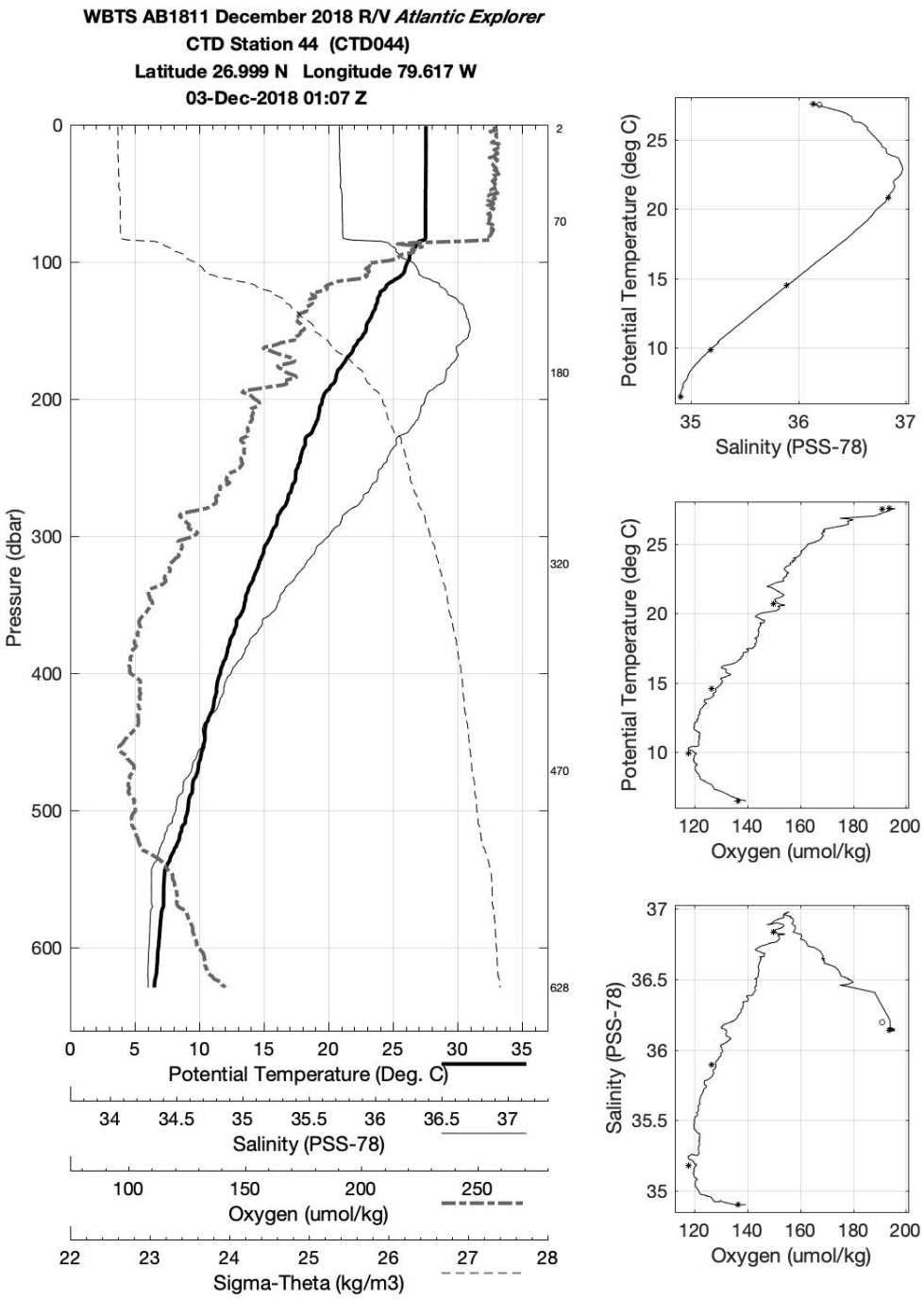

Potential Temperature (deg C)
25
20
15
10
120 140 160 180 200
Oxygen (umol/kg)


Salinity (PSS-78)
36.5
36
35.5
35
120 140 160 180 200
Oxygen (umol/kg)

WBTS AB1811 December 2018 R/V *Atlantic Explorer*
CTD Station 44 (CTD044)
Latitude 26.999N Longitude 79.617W
03-Dec-2018 01:07Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	27.553	27.553	36.135	194.9	0.004	23.394
10	27.549	27.547	36.135	195.2	0.045	23.396
20	27.555	27.550	36.137	195.4	0.090	23.397
30	27.552	27.545	36.139	194.8	0.135	23.400
50	27.532	27.520	36.150	195.6	0.224	23.416
75	27.536	27.518	36.155	194.0	0.336	23.421
100	26.162	26.140	36.602	171.2	0.440	24.199
125	23.938	23.912	36.858	158.2	0.524	25.075
150	22.941	22.910	36.974	155.5	0.592	25.458
200	19.564	19.528	36.685	145.7	0.703	26.173
250	17.659	17.616	36.408	142.6	0.792	26.446
300	15.578	15.531	36.064	133.0	0.870	26.674
400	11.672	11.620	35.435	120.1	0.999	27.000
500	9.159	9.103	35.080	121.1	1.107	27.164
600	6.886	6.828	34.907	134.0	1.194	27.370

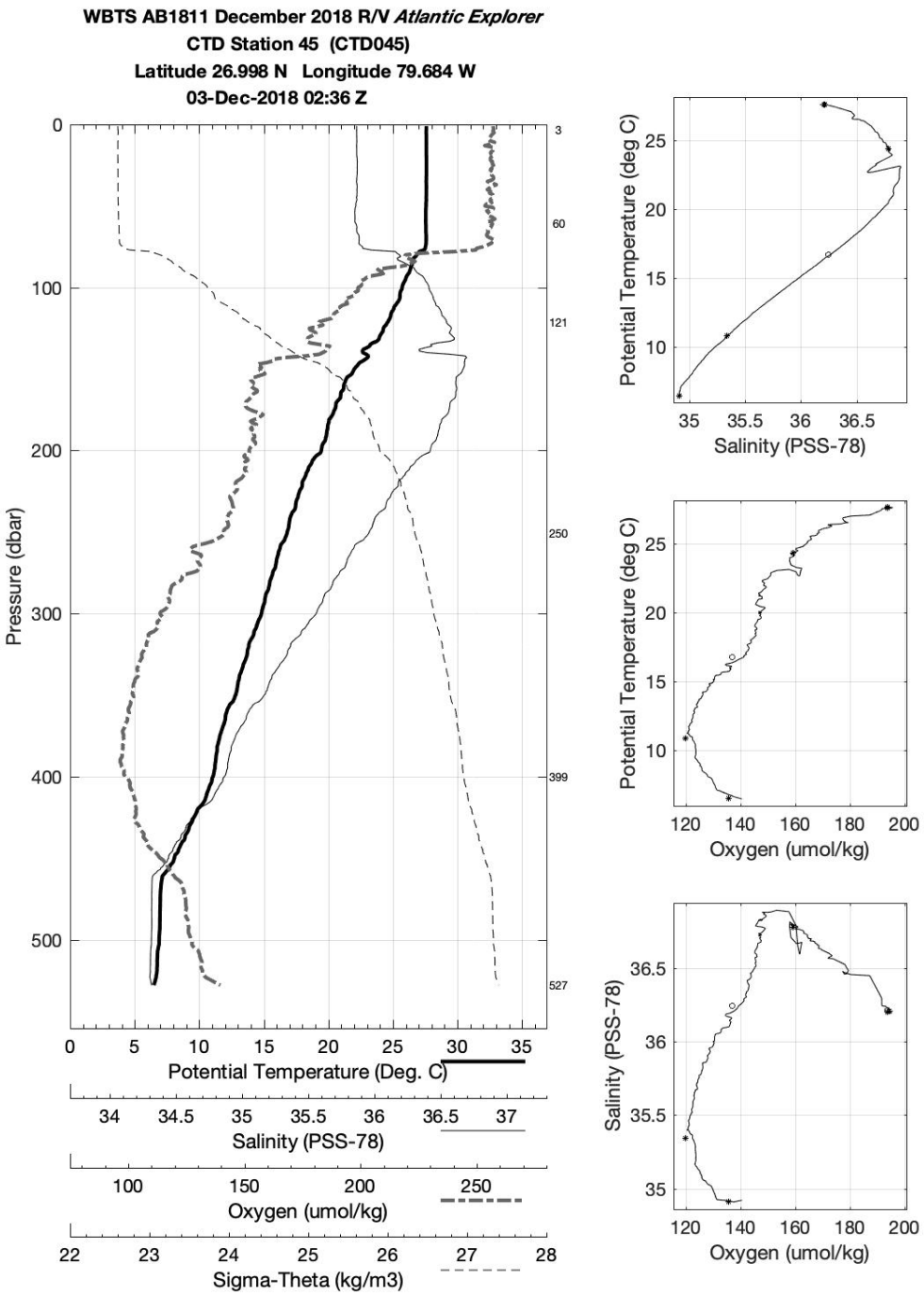
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
629	1	6.570	6.512	34.903	136.7
471	2	9.953	9.898	35.182	117.8
320	3	14.583	14.535	35.896	126.6
180	4	20.885	20.850	36.837	149.9
71	5	27.541	27.525	36.197	191.0
3	6	27.559	27.558	36.139	193.6


WBTS AB1811 December 2018 R/V Atlantic Explorer
CTD Station 44 (CTD044)
Latitude 26.999 N Longitude 79.617 W
03-Dec-2018 01:07 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS-78)
Oxygen (umol/kg)
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS-78)
Potential Temperature (deg C)
Oxygen (umol/kg)
Salinity (PSS-78)
Oxygen (umol/kg)

WBTS AB1811 December 2018 R/V *Atlantic Explorer*
CTD Station 45 (CTD045)
Latitude 26.998N Longitude 79.684W
03-Dec-2018 02:36Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	27.592	27.592	36.206	195.0	0.004	23.435
10	27.593	27.591	36.206	194.4	0.044	23.436
20	27.600	27.596	36.207	194.6	0.089	23.435
30	27.603	27.596	36.208	194.9	0.133	23.436
50	27.581	27.569	36.200	193.4	0.223	23.438
75	27.539	27.521	36.242	193.0	0.334	23.485
100	25.743	25.720	36.658	168.0	0.431	24.373
125	24.288	24.261	36.799	158.3	0.515	24.926
150	22.043	22.013	36.873	148.5	0.584	25.638
200	19.492	19.456	36.667	146.2	0.689	26.177
250	16.857	16.815	36.284	141.3	0.774	26.545
300	14.872	14.827	35.952	128.4	0.847	26.744
400	11.113	11.063	35.376	121.5	0.969	27.057
500	6.947	6.900	34.919	134.7	1.059	27.369

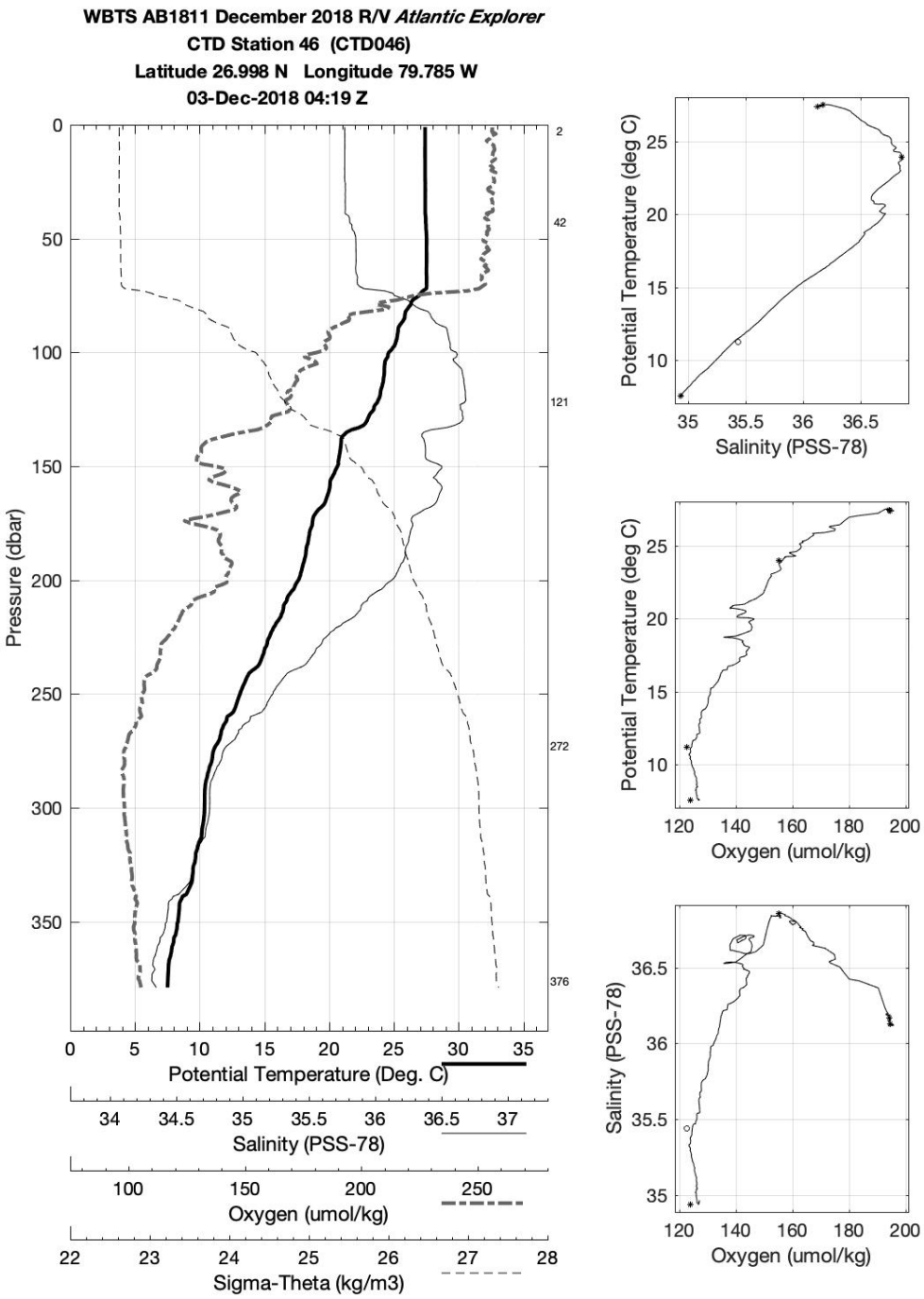
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
528	1	6.555	6.506	34.908	135.5
400	2	10.884	10.834	35.340	120.0
250	3	16.723	16.682	36.246	137.0
121	4	24.405	24.379	36.781	159.3
61	5	27.571	27.557	36.212	193.6
3	6	27.579	27.578	36.203	193.8


WBTS AB1811 December 2018 R/V Atlantic Explorer
CTD Station 45 (CTD045)
Latitude 26.998 N Longitude 79.684 W
03-Dec-2018 02:36 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS-78)
Oxygen (umol/kg)
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS-78)
Potential Temperature (deg C)
Oxygen (umol/kg)
Salinity (PSS-78)
Oxygen (umol/kg)

WBTS AB1811 December 2018 R/V *Atlantic Explorer*
CTD Station 46 (CTD046)
Latitude 26.998N Longitude 79.785W
03-Dec-2018 04:19Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	27.406	27.406	36.120	195.2	0.004	23.431
10	27.402	27.399	36.120	195.6	0.044	23.433
20	27.411	27.406	36.120	195.0	0.089	23.431
30	27.422	27.415	36.123	195.4	0.134	23.430
50	27.531	27.519	36.187	193.6	0.223	23.445
75	26.975	26.958	36.424	180.1	0.333	23.805
100	24.617	24.595	36.803	161.3	0.422	24.828
125	23.468	23.442	36.830	156.0	0.496	25.193
150	20.665	20.636	36.714	141.4	0.557	25.899
200	17.661	17.627	36.409	143.6	0.649	26.444
250	13.152	13.118	35.679	127.2	0.721	26.895
300	10.406	10.370	35.292	123.8	0.775	27.116

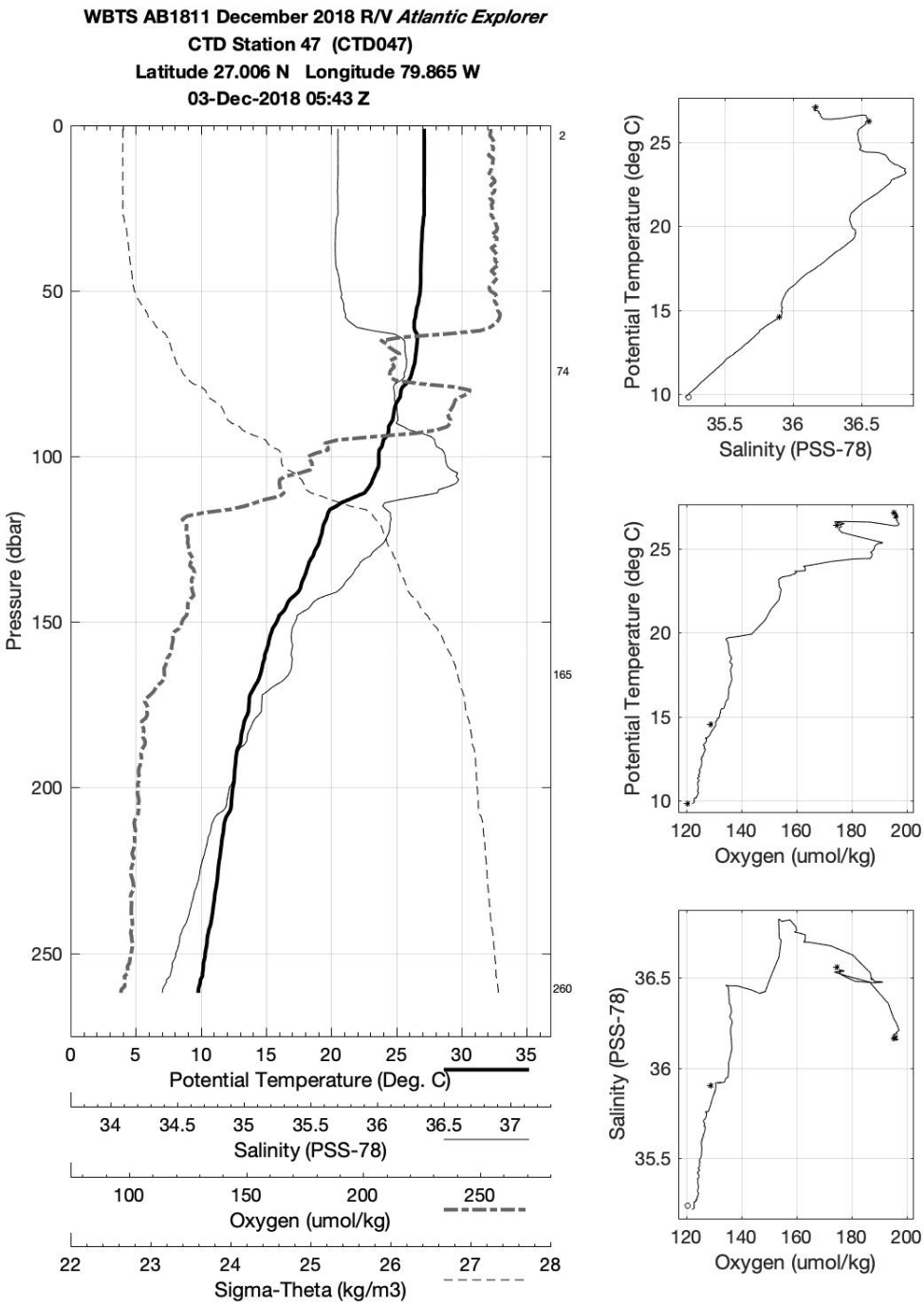
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
376	1	7.555	7.518	34.938	123.7
273	2	11.240	11.206	35.439	122.4
122	3	23.934	23.908	36.859	155.0
43	4	27.517	27.507	36.170	194.3
3	5	27.414	27.413	36.130	194.5


WBTS AB1811 December 2018 R/V Atlantic Explorer
CTD Station 46 (CTD046)
Latitude 26.998 N Longitude 79.785 W
03-Dec-2018 04:19 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS-78)
Oxygen (umol/kg)
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS-78)
Potential Temperature (deg C)
Oxygen (umol/kg)
Salinity (PSS-78)
Oxygen (umol/kg)

WBTS AB1811 December 2018 R/V *Atlantic Explorer*
CTD Station 47 (CTD047)
Latitude 27.006N Longitude 79.865W
03-Dec-2018 05:43Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	27.141	27.141	36.171	195.5	0.004	23.555
10	27.146	27.143	36.171	196.0	0.043	23.554
20	27.137	27.132	36.167	196.2	0.087	23.555
30	27.052	27.045	36.159	196.5	0.130	23.577
50	26.846	26.834	36.187	195.4	0.216	23.666
75	26.193	26.176	36.530	175.4	0.316	24.133
100	23.675	23.654	36.755	159.2	0.400	25.073
125	19.161	19.138	36.431	135.3	0.461	26.080
150	15.838	15.815	35.937	134.1	0.505	26.512
200	12.474	12.447	35.579	125.4	0.569	26.952
250	10.358	10.328	35.287	124.0	0.623	27.119

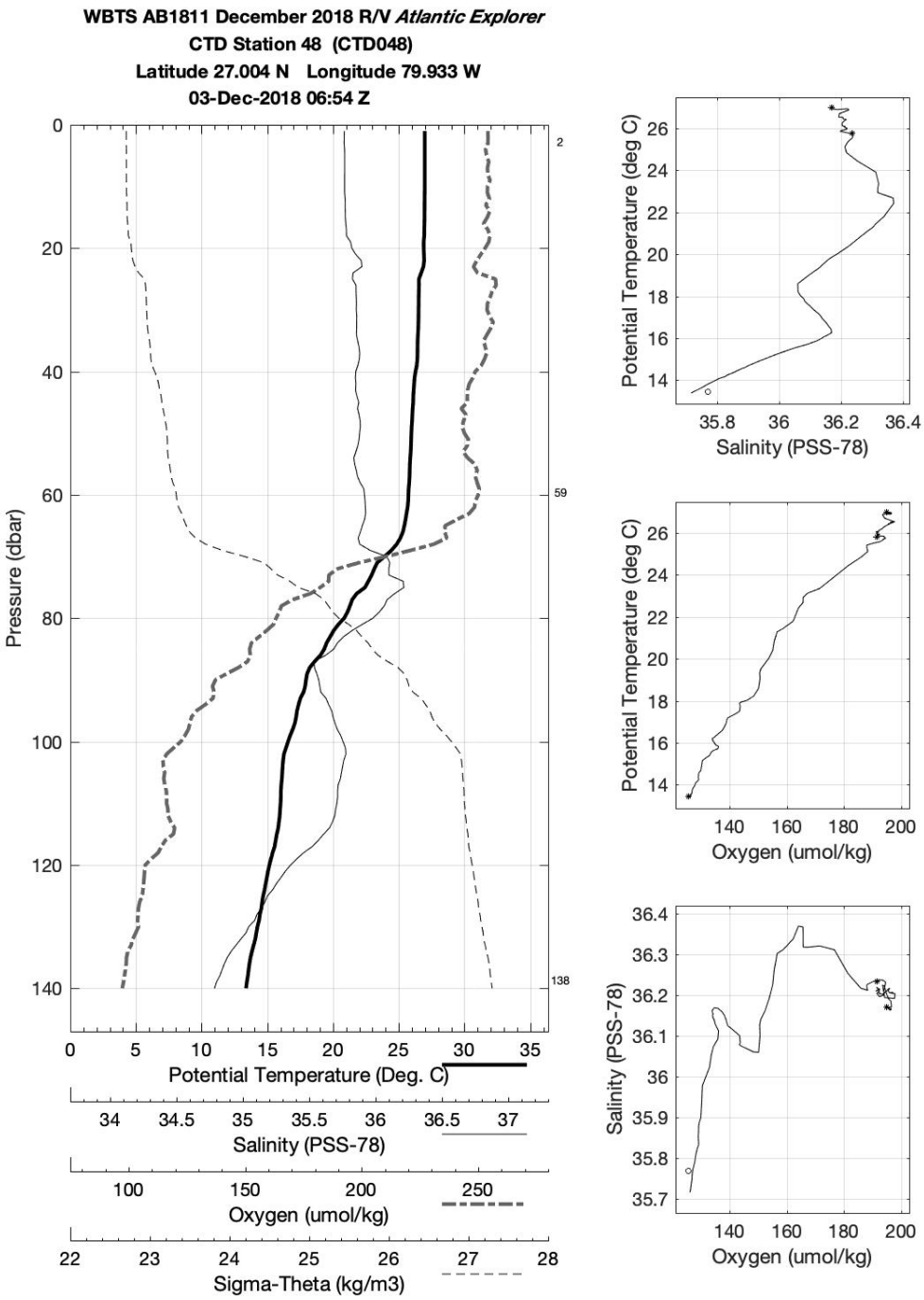
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
261	1	9.841	9.811	35.237	120.4
166	2	14.584	14.559	35.903	128.7
74	3	26.270	26.253	36.557	174.6
3	4	27.092	27.092	36.165	195.3


WBTS AB1811 December 2018 R/V Atlantic Explorer
CTD Station 47 (CTD047)
Latitude 27.006 N Longitude 79.865 W
03-Dec-2018 05:43 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS-78)
Oxygen (umol/kg)
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS-78)
Potential Temperature (deg C)
Oxygen (umol/kg)
Salinity (PSS-78)
Oxygen (umol/kg)

WBTS AB1811 December 2018 R/V *Atlantic Explorer*
CTD Station 48 (CTD048)
Latitude 27.004N Longitude 79.933W
03-Dec-2018 06:54Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	26.979	26.979	36.164	196.3	0.004	23.601
10	26.979	26.977	36.165	196.3	0.043	23.603
20	26.905	26.901	36.190	195.8	0.086	23.646
30	26.515	26.508	36.205	196.2	0.127	23.783
50	25.971	25.959	36.217	191.8	0.208	23.964
75	22.446	22.431	36.370	164.1	0.300	25.137
100	16.588	16.571	36.159	137.3	0.352	26.506
125	14.697	14.678	35.898	129.9	0.387	26.735

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
139	1	13.473	13.453	35.768	125.5
60	2	25.765	25.751	36.234	191.5
3	3	26.981	26.980	36.170	195.1


WBTS AB1811 December 2018 R/V Atlantic Explorer
CTD Station 48 (CTD048)
Latitude 27.004 N Longitude 79.933 W
03-Dec-2018 06:54 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS-78)
Oxygen (umol/kg)
Sigma-Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS-78)
Potential Temperature (deg C)
Oxygen (umol/kg)
Salinity (PSS-78)
Oxygen (umol/kg)

B WOCE Summary File

Table 19: AB1811 – WOCE Summary File

SHIP/CRS EXPOCODE	WOCE SECT	STN	CAST	CAST TYPE	CAST DATE	UTC TIME	EVENT CODE	LAT	LON	NAV	UNC DPH	HT ABV BTM	WIRE OUT	MAX PRS	NO. BTLS	PARA-METERS	COMMENTS
WBTSAE	AB1811	1	1	ROS	11/18/2018	20:26	BE	26.530N	76.883W	GPS							
WBTSAE	AB1811	1	1	ROS	11/18/2018	20:40	BO	26.536N	76.884W	GPS	351	28	360	355	8	1,2	niskin 1 no fire
WBTSAE	AB1811	1	1	ROS	11/18/2018	21:02	EN	26.547N	76.884W	GPS							
WBTSAE	AB1811	2	1	ROS	11/18/2018	21:48	BE	26.520N	76.835W	GPS							
WBTSAE	AB1811	2	1	ROS	11/18/2018	22:14	BO	26.527N	76.834W	GPS	191	3	1156	1094	13	1,2	
WBTSAE	AB1811	2	1	ROS	11/18/2018	22:54	EN	26.539N	76.835W	GPS							
WBTSAE	AB1811	3	1	ROS	11/18/2018	23:40	BE	26.500N	76.744W	GPS							
WBTSAE	AB1811	3	1	ROS	11/19/2018	00:55	BO	26.513N	76.748W	GPS	3871	21	3983	3935	24	1,2	niskin 3 leaky bottom o-ring
WBTSAE	AB1811	3	1	ROS	11/19/2018	02:54	EN	26.509N	76.753W	GPS							
WBTSAE	AB1811	4	1	ROS	11/19/2018	03:58	BE	26.499N	76.659W	GPS							
WBTSAE	AB1811	4	1	ROS	11/19/2018	05:31	BO	26.500N	76.656W	GPS	2862	87	4726	4686	24	1,2	niskin 1 no fire, 6,8 lanyard caught, 11 ver
WBTSAE	AB1811	4	1	ROS	11/19/2018	07:41	EN	26.504N	76.656W	GPS							
WBTSAE	AB1811	5	1	ROS	11/19/2018	10:39	BE	26.500N	76.564W	GPS							
WBTSAE	AB1811	5	1	ROS	11/19/2018	12:18	BO	26.500N	76.564W	GPS	987	87	4939	4909	24	1,2	niskin 1 no fire
WBTSAE	AB1811	5	1	ROS	11/19/2018	14:32	EN	26.500N	76.564W	GPS							
WBTSAE	AB1811	6	1	ROS	11/19/2018	16:26	BE	26.500N	76.476W	GPS							
WBTSAE	AB1811	6	1	ROS	11/19/2018	18:02	BO	26.500N	76.475W	GPS	4825	24	4940	4915	24	1,2	
WBTSAE	AB1811	6	1	ROS	11/19/2018	20:21	EN	26.500N	76.475W	GPS							
WBTSAE	AB1811	7	1	ROS	11/19/2018	22:07	BE	26.500N	76.347W	GPS							
WBTSAE	AB1811	7	1	ROS	11/19/2018	23:38	BO	26.499N	76.347W	GPS	4830	20	4925	4919	24	1,2	
WBTSAE	AB1811	7	1	ROS	11/20/2018	01:53	EN	26.501N	76.346W	GPS							
WBTSAE	AB1811	8	1	ROS	11/20/2018	03:34	BE	26.499N	76.216W	GPS							
WBTSAE	AB1811	8	1	ROS	11/20/2018	05:10	BO	26.507N	76.215W	GPS	4805	11	5006	4894	24	1,2	
WBTSAE	AB1811	8	1	ROS	11/20/2018	07:22	EN	26.519N	76.205W	GPS							
WBTSAE	AB1811	9	1	ROS	11/20/2018	09:27	BE	26.500N	76.086W	GPS							
WBTSAE	AB1811	9	1	ROS	11/20/2018	11:03	BO	26.499N	76.087W	GPS	4795	33	4887	4883	24	1,2	niskin 24 leaking top cap
WBTSAE	AB1811	9	1	ROS	11/20/2018	13:14	EN	26.501N	76.087W	GPS							
WBTSAE	AB1811	10	1	ROS	11/20/2018	15:02	BE	26.501N	75.899W	GPS							
WBTSAE	AB1811	10	1	ROS	11/20/2018	16:39	BO	26.509N	75.903W	GPS	4731	18	4838	4819	24	1,2	niskin 12 lanyard caught
WBTSAE	AB1811	10	1	ROS	11/20/2018	18:54	EN	26.518N	75.908W	GPS							
WBTSAE	AB1811	11	1	ROS	11/20/2018	20:51	BE	26.500N	75.704W	GPS							
WBTSAE	AB1811	11	1	ROS	11/20/2018	22:17	BO	26.500N	75.704W	GPS	4672	20	4769	4756	24	1,2	
WBTSAE	AB1811	11	1	ROS	11/21/2018	00:17	EN	26.500N	75.718W	GPS							
WBTSAE	AB1811	12	1	ROS	11/21/2018	01:52	BE	26.501N	75.501W	GPS							
WBTSAE	AB1811	12	1	ROS	11/21/2018	03:24	BO	26.502N	75.501W	GPS	4667	19	4755	4749	24	1,2	niskin 8 leaking
WBTSAE	AB1811	12	1	ROS	11/21/2018	05:35	EN	26.505N	75.502W	GPS							
WBTSAE	AB1811	13	1	ROS	11/21/2018	07:18	BE	26.501N	75.297W	GPS							
WBTSAE	AB1811	13	1	ROS	11/21/2018	08:44	BO	26.503N	75.301W	GPS	4630	16	4712	4713	24	1,2	
WBTSAE	AB1811	13	1	ROS	11/21/2018	10:47	EN	26.511N	75.310W	GPS							
WBTSAE	AB1811	14	1	ROS	11/21/2018	14:15	BE	26.500N	75.083W	GPS							
WBTSAE	AB1811	14	1	ROS	11/21/2018	15:45	BO	26.503N	75.094W	GPS	4598	18	4749	4682	24	1,2	
WBTSAE	AB1811	14	1	ROS	11/21/2018	17:57	EN	26.528N	75.099W	GPS							
WBTSAE	AB1811	15	1	ROS	11/21/2018	19:49	BE	26.500N	74.801W	GPS							
WBTSAE	AB1811	15	1	ROS	11/21/2018	21:13	BO	26.496N	74.813W	GPS	4525	21	4624	4606	24	1,2	
WBTSAE	AB1811	15	1	ROS	11/21/2018	23:03	EN	26.493N	74.820W	GPS							
WBTSAE	AB1811	16	1	ROS	11/22/2018	01:09	BE	26.500N	74.518W	GPS							
WBTSAE	AB1811	16	1	ROS	11/22/2018	02:36	BO	26.499N	74.516W	GPS	4475	28	4550	4554	24	1,2	niskin 11 leaking
WBTSAE	AB1811	16	1	ROS	11/22/2018	04:48	EN	26.507N	74.515W	GPS							
WBTSAE	AB1811	17	1	ROS	11/22/2018	06:47	BE	26.500N	74.233W	GPS							
WBTSAE	AB1811	17	1	ROS	11/22/2018	08:16	BO	26.501N	74.250W	GPS	4539	10	4672	4619	24	1,2	
WBTSAE	AB1811	17	1	ROS	11/22/2018	10:25	EN	26.510N	74.267W	GPS							
WBTSAE	AB1811	18	1	ROS	11/22/2018	13:17	BE	26.500N	73.867W	GPS							
WBTSAE	AB1811	18	1	ROS	11/22/2018	14:47	BO	26.500N	73.866W	GPS	4735	17	4812	4820	23	1,2	niskin 24 no fire
WBTSAE	AB1811	18	1	ROS	11/22/2018	16:45	EN	26.501N	73.865W	GPS							
WBTSAE	AB1811	19	1	ROS	11/22/2018	19:33	BE	26.502N	73.500W	GPS							
WBTSAE	AB1811	19	1	ROS	11/22/2018	21:12	BO	26.507N	73.518W	GPS	4918	17	5061	5010	24	1,2	
WBTSAE	AB1811	19	1	ROS	11/23/2018	00:01	EN	26.511N	73.525W	GPS							
WBTSAE	AB1811	20	1	ROS	11/23/2018	02:29	BE	26.500N	73.132W	GPS							
WBTSAE	AB1811	20	1	ROS	11/23/2018	04:06	BO	26.501N	73.134W	GPS	5028	21	5114	5123	24	1,2	niskin 22 leaking o-ring
WBTSAE	AB1811	20	1	ROS	11/23/2018	06:22	EN	26.502N	73.131W	GPS							
WBTSAE	AB1811	21	1	ROS	11/23/2018	10:18	BE	26.502N	72.763W	GPS							
WBTSAE	AB1811	21	1	ROS	11/23/2018	12:20	BO	26.498N	72.764W	GPS	5124	11	5214	5222	24	1,2	

WBTSAE	AB1811	21	1	ROS	11/23/2018	14:48	EN	26.519N	72.760W	GPS								
WBTSAE	AB1811	22	1	ROS	11/23/2018	23:24	BE	26.525N	72.390W	GPS								
WBTSAE	AB1811	22	1	ROS	11/24/2018	01:23	BO	26.544N	72.375W	GPS	5173	12	5383	5272	24	1,2		
WBTSAE	AB1811	22	1	ROS	11/24/2018	04:12	EN	26.568N	72.348W	GPS								
WBTSAE	AB1811	23	1	ROS	11/30/2018	02:08	BE	26.501N	76.470W	GPS								
WBTSAE	AB1811	23	1	ROS	11/30/2018	03:44	BO	26.506N	76.476W	GPS	4828	17	4956	4922	24	1,2		
WBTSAE	AB1811	23	1	ROS	11/30/2018	07:00	EN	26.514N	76.492W	GPS								
WBTSAE	AB1811	24	1	ROS	12/01/2018	09:54	BE	26.432N	78.666W	GPS								
WBTSAE	AB1811	24	1	ROS	12/01/2018	10:17	BO	26.429N	78.666W	GPS	760	10	772	766	11	1,2		
WBTSAE	AB1811	24	1	ROS	12/01/2018	10:49	EN	26.427N	78.665W	GPS								
WBTSAE	AB1811	25	1	ROS	12/01/2018	11:48	BE	26.333N	78.715W	GPS								
WBTSAE	AB1811	25	1	ROS	12/01/2018	12:08	BO	26.333N	78.711W	GPS	693	14	725	700	9	1,2		
WBTSAE	AB1811	25	1	ROS	12/01/2018	12:37	EN	26.326N	78.708W	GPS								
WBTSAE	AB1811	26	1	ROS	12/01/2018	13:19	BE	26.252N	78.765W	GPS								
WBTSAE	AB1811	26	1	ROS	12/01/2018	13:34	BO	26.250N	78.767W	GPS	516	6	528	521	7	1,2	niskin 6 lanyard caught	
WBTSAE	AB1811	26	1	ROS	12/01/2018	13:52	EN	26.249N	78.763W	GPS								
WBTSAE	AB1811	27	1	ROS	12/01/2018	14:41	BE	26.170N	78.799W	GPS								
WBTSAE	AB1811	27	1	ROS	12/01/2018	14:56	BO	26.168N	78.798W	GPS	451	9	466	455	7	1,2	niskin 6 lanyard caught	
WBTSAE	AB1811	27	1	ROS	12/01/2018	15:13	EN	26.165N	78.796W	GPS								
WBTSAE	AB1811	28	1	ROS	12/01/2018	16:20	BE	26.069N	78.850W	GPS								
WBTSAE	AB1811	28	1	ROS	12/01/2018	16:30	BO	26.068N	78.850W	GPS	295	11	301	299	6	1,2		
WBTSAE	AB1811	28	1	ROS	12/01/2018	16:45	EN	26.068N	78.849W	GPS								
WBTSAE	AB1811	29	1	ROS	12/01/2018	19:30	BE	26.049N	79.234W	GPS								
WBTSAE	AB1811	29	1	ROS	12/01/2018	19:42	BO	26.048N	79.230W	GPS	304	18	310	307	6	1,2		
WBTSAE	AB1811	29	1	ROS	12/01/2018	19:59	EN	26.047N	79.226W	GPS								
WBTSAE	AB1811	30	1	ROS	12/01/2018	20:51	BE	26.050N	79.311W	GPS								
WBTSAE	AB1811	30	1	ROS	12/01/2018	21:05	BO	26.050N	79.309W	GPS	468	19	474	470	9	1,2		
WBTSAE	AB1811	30	1	ROS	12/01/2018	21:26	EN	26.050N	79.308W	GPS								
WBTSAE	AB1811	31	1	ROS	12/01/2018	22:22	BE	26.050N	79.399W	GPS								
WBTSAE	AB1811	31	1	ROS	12/01/2018	22:38	BO	26.052N	79.396W	GPS	575	16	589	579	9	1,2		
WBTSAE	AB1811	31	1	ROS	12/01/2018	23:01	EN	26.054N	79.391W	GPS								
WBTSAE	AB1811	32	1	ROS	12/01/2018	23:58	BE	26.051N	79.480W	GPS								
WBTSAE	AB1811	32	1	ROS	12/02/2018	00:17	BO	26.057N	79.477W	GPS	662	14	678	668	11	1,2		
WBTSAE	AB1811	32	1	ROS	12/02/2018	00:47	EN	26.062N	79.470W	GPS								
WBTSAE	AB1811	33	1	ROS	12/02/2018	01:46	BE	26.048N	79.566W	GPS								
WBTSAE	AB1811	33	1	ROS	12/02/2018	02:11	BO	26.050N	79.563W	GPS	745	21	783	752	11	1,2		
WBTSAE	AB1811	33	1	ROS	12/02/2018	02:44	EN	26.054N	79.557W	GPS								
WBTSAE	AB1811	34	1	ROS	12/02/2018	03:50	BE	26.048N	79.666W	GPS								
WBTSAE	AB1811	34	1	ROS	12/02/2018	04:10	BO	26.055N	79.664W	GPS	682	20	693	688	10	1,2		
WBTSAE	AB1811	34	1	ROS	12/02/2018	04:41	EN	26.066N	79.661W	GPS								
WBTSAE	AB1811	35	1	ROS	12/02/2018	05:44	BE	26.052N	79.765W	GPS								
WBTSAE	AB1811	35	1	ROS	12/02/2018	06:00	BO	26.061N	79.763W	GPS	594	12	607	599	10	1,2		
WBTSAE	AB1811	35	1	ROS	12/02/2018	06:30	EN	26.074N	79.756W	GPS								
WBTSAE	AB1811	36	1	ROS	12/02/2018	07:28	BE	26.051N	79.849W	GPS								
WBTSAE	AB1811	36	1	ROS	12/02/2018	07:40	BO	26.057N	79.845W	GPS	322	12	338	325	5	1,2		
WBTSAE	AB1811	36	1	ROS	12/02/2018	07:55	EN	26.064N	79.840W	GPS								
WBTSAE	AB1811	37	1	ROS	12/02/2018	08:49	BE	26.053N	79.932W	GPS								
WBTSAE	AB1811	37	1	ROS	12/02/2018	08:59	BO	26.058N	79.929W	GPS	264	11	271	266	5	1,2		
WBTSAE	AB1811	37	1	ROS	12/02/2018	09:13	EN	26.064N	79.925W	GPS								
WBTSAE	AB1811	38	1	ROS	12/02/2018	10:06	BE	26.051N	79.999W	GPS								
WBTSAE	AB1811	38	1	ROS	12/02/2018	10:17	BO	26.055N	79.999W	GPS	241	10	247	244	5	1,2		
WBTSAE	AB1811	38	1	ROS	12/02/2018	10:31	EN	26.061N	79.999W	GPS								
WBTSAE	AB1811	39	1	ROS	12/02/2018	11:12	BE	26.047N	80.065W	GPS								
WBTSAE	AB1811	39	1	ROS	12/02/2018	11:20	BO	26.046N	80.066W	GPS	125	9	123	126	4	1,2		
WBTSAE	AB1811	39	1	ROS	12/02/2018	11:31	EN	26.046N	80.067W	GPS								
WBTSAE	AB1811	40	1	ROS	12/02/2018	18:21	BE	27.000N	79.201W	GPS								
WBTSAE	AB1811	40	1	ROS	12/02/2018	18:36	BO	27.000N	79.200W	GPS	468	17	476	472	6	1,2		
WBTSAE	AB1811	40	1	ROS	12/02/2018	18:57	EN	26.999N	79.199W	GPS								
WBTSAE	AB1811	41	1	ROS	12/02/2018	19:48	BE	27.000N	79.284W	GPS								
WBTSAE	AB1811	41	1	ROS	12/02/2018	20:05	BO	27.002N	79.281W	GPS	601	14	622	607	6	1,2		
WBTSAE	AB1811	41	1	ROS	12/02/2018	20:27	EN	27.005N	79.278W	GPS								
WBTSAE	AB1811	42	1	ROS	12/02/2018	21:23	BE	27.001N	79.382W	GPS								
WBTSAE	AB1811	42	1	ROS	12/02/2018	21:38	BO	27.004N	79.379W	GPS	644	23	671	650	6	1,2		
WBTSAE	AB1811	42	1	ROS	12/02/2018	22:01	EN	27.007N	79.374W	GPS								
WBTSAE	AB1811	43	1	ROS	12/02/2018	23:12	BE	27.000N	79.500W	GPS								
WBTSAE	AB1811	43	1	ROS	12/02/2018	23:31	BO	27.006N	79.498W	GPS	743	19	757	749	7	1,2		

WBTSAE	AB1811	43	1	ROS	12/02/2018	23:57	EN	27.015N	79.496W	GPS							
WBTSAE	AB1811	44	1	ROS	12/03/2018	01:18	BE	26.995N	79.618W	GPS							
WBTSAE	AB1811	44	1	ROS	12/03/2018	01:37	BO	27.003N	79.616W	GPS	624	22	634	629	6	1,2	
WBTSAE	AB1811	44	1	ROS	12/03/2018	01:58	EN	27.015N	79.615W	GPS							
WBTSAE	AB1811	45	1	ROS	12/03/2018	02:52	BE	26.995N	79.685W	GPS							
WBTSAE	AB1811	45	1	ROS	12/03/2018	03:09	BO	27.002N	79.683W	GPS	524	14	534	528	6	1,2	
WBTSAE	AB1811	45	1	ROS	12/03/2018	03:28	EN	27.011N	79.682W	GPS							
WBTSAE	AB1811	46	1	ROS	12/03/2018	04:33	BE	26.994N	79.785W	GPS							
WBTSAE	AB1811	46	1	ROS	12/03/2018	04:46	BO	27.002N	79.784W	GPS	373	13	395	379	5	1,2	
WBTSAE	AB1811	46	1	ROS	12/03/2018	05:05	EN	27.012N	79.782W	GPS							
WBTSAE	AB1811	47	1	ROS	12/03/2018	05:55	BE	27.002N	79.866W	GPS							
WBTSAE	AB1811	47	1	ROS	12/03/2018	06:05	BO	27.009N	79.864W	GPS	259	11	277	262	4	1,2	
WBTSAE	AB1811	47	1	ROS	12/03/2018	06:19	EN	27.017N	79.861W	GPS							
WBTSAE	AB1811	48	1	ROS	12/03/2018	07:06	BE	27.001N	79.933W	GPS							
WBTSAE	AB1811	48	1	ROS	12/03/2018	07:12	BO	27.005N	79.933W	GPS	138	11	143	140	3	1,2	
WBTSAE	AB1811	48	1	ROS	12/03/2018	07:21	EN	27.010N	79.933W	GPS							

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

C WOCE Bottle Summary File

Table 20: AB1811 – WOCE Bottle Summary File

SHIP/CRS EXPOCODE	WOCE SECT	STN	CAST	BTL#	BTL# Flag	DATE	UTC TIME	LAT	LON	DEPTH	CTD PRS	CTD TMP	CTD SAL	SAL FLAG	BTL SAL	SAL FLAG	CTD OXY	OXY FLAG	BTL OXY	OXY FLAG
WBTSAE	AB1811	1	1	1	2	20181118	2041	26.536N	76.884W	351	353	18.316	36.545	2	-999.000	9	-999.0	9	-999.0	9
WBTSAE	AB1811	1	1	2	2	20181118	2044	26.538N	76.884W	300	302	19.033	36.630	2	36.614	4	195.6	2	196.5	2
WBTSAE	AB1811	1	1	3	2	20181118	2046	26.539N	76.885W	248	250	19.736	36.686	2	36.660	4	192.0	2	194.7	4
WBTSAE	AB1811	1	1	4	2	20181118	2048	26.540N	76.885W	181	183	21.979	36.855	2	36.776	4	184.5	2	196.3	4
WBTSAE	AB1811	1	1	5	2	20181118	2052	26.542N	76.885W	129	130	24.519	36.819	2	36.820	2	194.9	2	209.5	4
WBTSAE	AB1811	1	1	6	2	20181118	2055	26.543N	76.885W	81	81	27.695	36.656	2	36.655	2	197.6	2	195.4	2
WBTSAE	AB1811	1	1	7	2	20181118	2057	26.545N	76.884W	30	30	27.787	36.645	2	36.648	2	191.4	2	219.2	4
WBTSAE	AB1811	1	1	8	2	20181118	2100	26.546N	76.884W	3	3	27.806	36.641	2	36.642	2	197.8	2	195.2	2
WBTSAE	AB1811	2	1	1	2	20181118	2216	26.528N	76.834W	1076	1086	5.237	35.042	2	35.046	4	224.1	2	252.2	4
WBTSAE	AB1811	2	1	2	2	20181118	2219	26.528N	76.834W	990	999	5.939	35.071	2	35.078	2	209.3	2	209.4	6
WBTSAE	AB1811	2	1	3	2	20181118	2221	26.529N	76.834W	895	902	7.709	35.117	2	35.120	2	162.0	2	161.6	2
WBTSAE	AB1811	2	1	4	2	20181118	2224	26.530N	76.834W	796	802	8.900	35.197	2	35.211	4	145.6	2	145.3	2
WBTSAE	AB1811	2	1	5	2	20181118	2227	26.531N	76.834W	697	702	11.487	35.482	2	35.484	2	140.7	2	164.5	4
WBTSAE	AB1811	2	1	6	2	20181118	2230	26.532N	76.834W	599	604	13.753	35.807	2	35.817	2	152.6	2	161.6	4
WBTSAE	AB1811	2	1	7	2	20181118	2233	26.533N	76.834W	502	505	16.422	36.243	2	36.251	2	172.8	2	171.6	2
WBTSAE	AB1811	2	1	8	2	20181118	2237	26.534N	76.834W	391	394	18.336	36.547	2	36.548	6	185.3	2	184.0	2
WBTSAE	AB1811	2	1	9	2	20181118	2240	26.535N	76.834W	280	282	19.509	36.663	2	36.666	2	191.2	2	190.8	2
WBTSAE	AB1811	2	1	10	2	20181118	2243	26.536N	76.834W	191	192	21.817	36.877	2	36.880	2	190.0	2	188.5	2
WBTSAE	AB1811	2	1	11	2	20181118	2245	26.537N	76.834W	120	121	26.462	36.660	2	36.657	2	192.9	2	196.1	4
WBTSAE	AB1811	2	1	12	2	20181118	2247	26.537N	76.834W	71	71	27.624	36.617	2	36.618	2	197.4	2	194.7	2
WBTSAE	AB1811	2	1	13	2	20181118	2251	26.538N	76.834W	3	3	27.643	36.609	2	36.608	2	197.2	2	194.4	2
WBTSAE	AB1811	3	1	1	2	20181119	0055	26.513N	76.748W	3871	3933	2.267	34.889	2	34.942	4	265.3	2	262.9	6
WBTSAE	AB1811	3	1	2	2	20181119	0103	26.512N	76.749W	3517	3570	2.358	34.898	2	34.901	2	268.8	2	268.4	2
WBTSAE	AB1811	3	1	3	2	20181119	0110	26.512N	76.749W	3272	3319	2.531	34.909	2	34.915	4	269.2	2	268.5	2
WBTSAE	AB1811	3	1	4	2	20181119	0118	26.512N	76.749W	2966	3007	2.737	34.921	2	34.923	2	267.7	2	266.8	2
WBTSAE	AB1811	3	1	5	2	20181119	0125	26.511N	76.749W	2669	2704	3.002	34.937	2	34.938	2	-999.0	9	-999.0	9
WBTSAE	AB1811	3	1	6	2	20181119	0131	26.511N	76.749W	2474	2505	3.087	34.942	2	34.941	2	264.1	2	262.6	2
WBTSAE	AB1811	3	1	7	2	20181119	0138	26.511N	76.749W	2178	2204	3.480	34.958	2	34.964	4	262.5	2	261.7	2
WBTSAE	AB1811	3	1	8	2	20181119	0146	26.511N	76.749W	1883	1904	3.716	34.969	2	34.972	2	261.6	2	260.0	2
WBTSAE	AB1811	3	1	9	2	20181119	0151	26.511N	76.749W	1686	1704	3.838	34.975	2	34.973	2	260.2	2	258.8	6
WBTSAE	AB1811	3	1	10	2	20181119	0156	26.511N	76.749W	1538	1554	4.025	34.985	2	34.990	4	258.0	2	256.7	2
WBTSAE	AB1811	3	1	11	2	20181119	0200	26.511N	76.749W	1393	1406	4.321	35.001	2	35.003	6	254.1	2	252.4	2
WBTSAE	AB1811	3	1	12	2	20181119	0205	26.511N	76.749W	1242	1254	4.643	35.018	2	35.025	4	247.2	2	246.3	2
WBTSAE	AB1811	3	1	13	2	20181119	0209	26.510N	76.750W	1094	1104	5.281	35.050	2	35.054	4	228.4	2	228.8	2
WBTSAE	AB1811	3	1	14	2	20181119	0214	26.510N	76.750W	945	954	6.529	35.091	2	35.094	2	190.6	2	189.8	2
WBTSAE	AB1811	3	1	15	2	20181119	0218	26.510N	76.750W	810	816	8.712	35.175	2	35.173	2	147.3	2	147.3	2
WBTSAE	AB1811	3	1	16	2	20181119	0222	26.510N	76.750W	700	706	11.277	35.453	2	35.454	6	144.1	2	142.5	2
WBTSAE	AB1811	3	1	17	2	20181119	0226	26.510N	76.750W	591	596	14.254	35.887	2	35.878	4	165.3	2	163.6	2
WBTSAE	AB1811	3	1	18	2	20181119	0229	26.509N	76.750W	482	486	16.669	36.284	2	36.280	2	173.2	2	172.5	2
WBTSAE	AB1811	3	1	19	2	20181119	0233	26.509N	76.750W	374	376	18.558	36.574	2	36.679	4	183.7	2	182.4	2
WBTSAE	AB1811	3	1	20	2	20181119	0236	26.509N	76.750W	266	268	19.745	36.682	2	36.681	2	190.9	2	189.9	2
WBTSAE	AB1811	3	1	21	2	20181119	0240	26.509N	76.751W	174	175	22.708	36.851	2	36.853	2	199.5	2	198.6	2
WBTSAE	AB1811	3	1	22	2	20181119	0243	26.509N	76.751W	96	97	27.657	36.614	2	36.851	4	196.0	2	195.2	2
WBTSAE	AB1811	3	1	23	2	20181119	0246	26.509N	76.751W	47	47	27.723	36.605	2	36.606	2	196.2	2	195.1	2
WBTSAE	AB1811	3	1	24	2	20181119	0248	26.509N	76.751W	2	2	27.702	36.578	2	36.579	2	197.3	2	195.5	2
WBTSAE	AB1811	4	1	1	2	20181119	0531	26.500N	76.656W	4604	4685	2.268	34.882	2	-999.000	9	-999.0	9	-999.0	9
WBTSAE	AB1811	4	1	2	2	20181119	0544	26.500N	76.656W	4073	4140	2.266	34.889	2	34.890	6	266.5	2	266.8	2
WBTSAE	AB1811	4	1	3	2	20181119	0554	26.500N	76.656W	3667	3724	2.334	34.896	2	34.894	4	268.7	2	267.8	2
WBTSAE	AB1811	4	1	4	2	20181119	0603	26.501N	76.656W	3253	3300	2.439	34.905	2	-999.000	9	269.5	2	269.8	2
WBTSAE	AB1811	4	1	5	2	20181119	0612	26.501N	76.656W	2862	2901	2.798	34.926	2	34.923	4	266.7	2	266.5	2
WBTSAE	AB1811	4	1	6	2	20181119	0619	26.501N	76.656W	2569	2602	3.037	34.939	2	-999.000	9	-999.0	9	-999.0	9
WBTSAE	AB1811	4	1	7	2	20181119	0626	26.501N	76.656W	2272	2300	3.318	34.953	2	34.947	4	262.9	2	262.3	6
WBTSAE	AB1811	4	1	8	2	20181119	0631	26.502N	76.656W	2074	2098	3.497	34.959	2	-999.000	9	-999.0	9	-999.0	9
WBTSAE	AB1811	4	1	9	2	20181119	0636	26.502N	76.656W	1879	1900	3.658	34.966	2	34.943	4	261.6	2	260.7	2
WBTSAE	AB1811	4	1	10	2	20181119	0643	26.502N	76.656W	1585	1602	3.871	34.978	2	34.909	4	251.4	2	280.0	4
WBTSAE	AB1811	4	1	11	2	20181119	0649	26.503N	76.655W	1389	1403	4.216	34.994	2	34.994	2	255.9	2	254.9	2
WBTSAE	AB1811	4	1	12	2	20181119	0655	26.503N	76.656W	1212	1224	4.685	35.024	2	35.023	2	245.4	2	245.6	2
WBTSAE	AB1811	4	1	13	2	20181119	0700	26.503N	76.656W	1034	1043	5.867	35.072	2	35.074	2	210.3	2	211.2	2
WBTSAE	AB1811	4	1	14	2	20181119	0704	26.503N	76.656W	902	910	7.050	35.104	2	35.106	2	177.1	2	178.7	2
WBTSAE	AB1811	4	1	15	2	20181119	0708	26.503N	76.656W	794	800	9.118	35.204	2	35.204	2	143.6	2	142.4	6
WBTSAE	AB1811	4	1	16	2	20181119	0711	26.503N	76.656W	684	690	12.058	35.554	2	35.552	2	145.9	2	145.2	2
WBTSAE	AB1811	4	1	17	2	20181119	0715	26.503N	76.656W	576	580	14.563	35.944	2	35.936	2	158.0	2	159.6	2

WBTSAE	AB1811	4	1	18	2	20181119	0719	26.503N	76.656W	466	470	17.143	36.366	2	-999.000	9	175.5	2	175.6	2
WBTSAE	AB1811	4	1	19	2	20181119	0722	26.504N	76.656W	357	360	18.866	36.607	2	-999.000	9	185.4	2	185.8	2
WBTSAE	AB1811	4	1	20	2	20181119	0726	26.504N	76.656W	248	250	20.005	36.709	2	36.709	6	188.2	2	187.4	2
WBTSAE	AB1811	4	1	21	2	20181119	0729	26.504N	76.656W	159	160	23.428	36.892	2	36.895	2	198.0	2	198.6	2
WBTSAE	AB1811	4	1	22	2	20181119	0731	26.504N	76.656W	109	110	27.330	36.653	2	36.655	2	196.1	2	197.6	2
WBTSAE	AB1811	4	1	23	2	20181119	0734	26.504N	76.656W	60	60	27.775	36.599	2	36.597	2	196.3	2	195.5	2
WBTSAE	AB1811	4	1	24	2	20181119	0739	26.504N	76.656W	3	3	27.733	36.589	2	36.587	2	196.5	2	195.7	2
WBTSAE	AB1811	5	1	1	2	20181119	1218	26.500N	76.564W	4820	4907	2.170	34.868	2	-999.000	9	-999.0	9	-999.0	9
WBTSAE	AB1811	5	1	2	2	20181119	1225	26.500N	76.564W	4521	4600	2.243	34.881	2	34.882	2	261.3	2	260.9	2
WBTSAE	AB1811	5	1	3	2	20181119	1235	26.500N	76.565W	4132	4200	2.268	34.888	2	34.890	6	265.1	2	264.5	2
WBTSAE	AB1811	5	1	4	2	20181119	1244	26.500N	76.565W	3742	3800	2.312	34.895	2	34.895	2	267.6	2	267.1	2
WBTSAE	AB1811	5	1	5	2	20181119	1253	26.500N	76.565W	3351	3400	2.444	34.905	2	34.905	2	269.6	2	269.2	2
WBTSAE	AB1811	5	1	6	2	20181119	1301	26.500N	76.564W	2953	2994	2.664	34.919	2	34.921	2	267.5	2	267.0	2
WBTSAE	AB1811	5	1	7	2	20181119	1312	26.500N	76.565W	2470	2501	3.123	34.944	2	34.944	2	263.2	2	262.7	6
WBTSAE	AB1811	5	1	8	2	20181119	1322	26.500N	76.565W	1978	2001	3.576	34.964	2	34.963	2	261.8	2	261.4	2
WBTSAE	AB1811	5	1	9	2	20181119	1329	26.500N	76.565W	1733	1752	3.845	34.978	2	34.980	2	259.8	2	258.2	2
WBTSAE	AB1811	5	1	10	2	20181119	1335	26.500N	76.565W	1520	1536	4.103	34.990	2	34.990	2	249.1	2	260.1	4
WBTSAE	AB1811	5	1	11	2	20181119	1341	26.500N	76.565W	1322	1335	4.514	35.014	2	35.015	2	249.4	2	249.0	2
WBTSAE	AB1811	5	1	12	2	20181119	1346	26.500N	76.565W	1156	1166	4.926	35.034	2	35.035	2	239.2	2	240.0	2
WBTSAE	AB1811	5	1	13	2	20181119	1350	26.500N	76.566W	987	996	6.429	35.084	2	35.088	2	193.0	2	192.6	2
WBTSAE	AB1811	5	1	14	2	20181119	1354	26.500N	76.566W	873	881	8.043	35.135	2	35.136	2	155.9	2	157.6	6
WBTSAE	AB1811	5	1	15	2	20181119	1358	26.500N	76.565W	768	775	10.046	35.299	2	35.295	2	141.0	2	140.2	2
WBTSAE	AB1811	5	1	16	2	20181119	1402	26.500N	76.565W	660	665	12.415	35.605	2	35.605	2	146.9	2	145.5	2
WBTSAE	AB1811	5	1	17	2	20181119	1406	26.500N	76.565W	551	555	15.205	36.044	2	36.040	2	164.5	2	164.2	2
WBTSAE	AB1811	5	1	18	2	20181119	1410	26.500N	76.565W	442	445	17.710	36.459	2	36.459	2	177.7	2	178.8	2
WBTSAE	AB1811	5	1	19	2	20181119	1413	26.500N	76.565W	332	335	19.195	36.637	2	36.637	6	189.1	2	187.6	2
WBTSAE	AB1811	5	1	20	2	20181119	1417	26.500N	76.565W	224	226	20.686	36.774	2	36.774	2	189.7	2	188.4	2
WBTSAE	AB1811	5	1	21	2	20181119	1421	26.500N	76.565W	135	136	24.916	36.831	2	36.824	2	202.1	2	202.6	2
WBTSAE	AB1811	5	1	22	2	20181119	1423	26.500N	76.565W	85	86	27.771	36.578	2	36.592	4	195.2	2	195.0	2
WBTSAE	AB1811	5	1	23	2	20181119	1426	26.500N	76.564W	35	36	27.763	36.579	2	36.579	2	195.7	2	195.2	2
WBTSAE	AB1811	5	1	24	2	20181119	1428	26.500N	76.564W	3	3	27.772	36.579	2	36.578	2	195.5	2	195.2	2
WBTSAE	AB1811	6	1	1	2	20181119	1804	26.500N	76.475W	4825	4913	2.206	34.872	2	34.871	2	256.3	2	256.9	2
WBTSAE	AB1811	6	1	2	2	20181119	1814	26.500N	76.475W	4522	4601	2.242	34.881	2	34.881	2	244.7	2	185.3	4
WBTSAE	AB1811	6	1	3	2	20181119	1824	26.500N	76.475W	4092	4160	2.268	34.889	2	34.891	6	249.8	2	173.0	4
WBTSAE	AB1811	6	1	4	2	20181119	1833	26.500N	76.475W	3712	3770	2.319	34.895	2	34.901	4	253.2	2	174.7	4
WBTSAE	AB1811	6	1	5	2	20181119	1842	26.500N	76.475W	3357	3407	2.438	34.904	2	34.894	4	269.2	2	270.0	2
WBTSAE	AB1811	6	1	6	2	20181119	1851	26.500N	76.475W	2955	2995	2.676	34.919	2	34.927	4	254.4	2	178.8	4
WBTSAE	AB1811	6	1	7	2	20181119	1901	26.500N	76.475W	2550	2582	3.026	34.939	2	34.941	2	252.2	2	217.5	4
WBTSAE	AB1811	6	1	8	2	20181119	1910	26.500N	76.476W	2143	2168	3.393	34.956	2	34.955	2	252.4	2	222.9	4
WBTSAE	AB1811	6	1	9	2	20181119	1918	26.500N	76.475W	1837	1857	3.685	34.970	2	34.971	2	252.0	2	156.4	4
WBTSAE	AB1811	6	1	10	2	20181119	1925	26.500N	76.475W	1579	1595	4.045	34.988	2	34.992	4	257.3	2	255.7	2
WBTSAE	AB1811	6	1	11	2	20181119	1930	26.500N	76.475W	1390	1404	4.348	35.003	2	35.003	2	252.9	2	254.5	2
WBTSAE	AB1811	6	1	12	2	20181119	1935	26.500N	76.475W	1220	1231	4.802	35.028	2	35.027	2	242.7	2	241.1	2
WBTSAE	AB1811	6	1	13	2	20181119	1941	26.500N	76.475W	1050	1059	5.746	35.069	2	35.069	2	207.7	2	185.3	4
WBTSAE	AB1811	6	1	14	2	20181119	1945	26.500N	76.475W	944	952	6.887	35.096	2	35.095	2	176.7	2	124.3	4
WBTSAE	AB1811	6	1	15	2	20181119	1948	26.500N	76.475W	835	842	9.223	35.220	2	35.223	2	140.2	2	99.4	4
WBTSAE	AB1811	6	1	16	2	20181119	1952	26.500N	76.475W	725	731	11.285	35.451	2	35.446	2	136.9	2	100.0	4
WBTSAE	AB1811	6	1	17	2	20181119	1955	26.500N	76.475W	617	622	13.635	35.783	2	35.779	2	152.5	2	106.0	4
WBTSAE	AB1811	6	1	18	2	20181119	1958	26.500N	76.475W	506	510	16.393	36.238	2	36.232	2	166.8	2	116.2	4
WBTSAE	AB1811	6	1	19	2	20181119	2002	26.500N	76.475W	399	402	18.295	36.541	2	36.541	2	179.4	2	161.3	4
WBTSAE	AB1811	6	1	20	2	20181119	2005	26.500N	76.475W	288	290	19.541	36.664	2	36.667	2	184.3	2	153.7	4
WBTSAE	AB1811	6	1	21	2	20181119	2008	26.500N	76.475W	199	201	21.942	36.880	2	36.883	2	185.2	2	143.7	4
WBTSAE	AB1811	6	1	22	2	20181119	2011	26.500N	76.475W	120	121	25.869	36.726	2	36.736	2	193.1	2	169.0	4
WBTSAE	AB1811	6	1	23	2	20181119	2013	26.500N	76.475W	71	71	27.797	36.617	2	36.620	2	189.1	2	171.6	4
WBTSAE	AB1811	6	1	24	2	20181119	2016	26.500N	76.475W	3	3	28.050	36.631	2	36.633	2	195.8	2	195.2	2
WBTSAE	AB1811	7	1	1	2	20181119	2339	26.498N	76.347W	4830	4918	2.229	34.875	2	34.876	2	255.5	2	257.8	6
WBTSAE	AB1811	7	1	2	2	20181119	2348	26.498N	76.346W	4502	4580	2.253	34.883	2	34.885	2	262.0	2	262.0	2
WBTSAE	AB1811	7	1	3	2	20181119	2355	26.498N	76.347W	4171	4241	2.265	34.888	2	34.889	2	264.8	2	265.2	2
WBTSAE	AB1811	7	1	4	2	20181120	0003	26.498N	76.347W	3839	3899	2.298	34.894	2	34.892	2	266.7	2	266.8	2
WBTSAE	AB1811	7	1	5	2	20181120	0011	26.498N	76.347W	3513	3566	2.384	34.901	2	34.897	4	268.1	2	267.6	2
WBTSAE	AB1811	7	1	6	2	20181120	0020	26.497N	76.347W	3101	3145	2.596	34.915	2	34.915	2	267.7	2	268.4	2
WBTSAE	AB1811	7	1	7	2	20181120	0028	26.498N	76.347W	2699	2735	2.913	34.934	2	34.934	2	264.2	2	264.3	2
WBTSAE	AB1811	7	1	8	2	20181120	0038	26.498N	76.346W	2292	2320	3.292	34.955	2	34.954	2	261.9	2	260.7	2
WBTSAE	AB1811	7	1	9	2	20181120	0045	26.498N	76.346W	1935	1956	3.610	34.965	2	34.962	2	-999.0	9	-999.0	9
WBTSAE	AB1811	7	1	10	2	20181120	0052	26.499N	76.346W	1685	1703	3.912	34.980	2	34.978	2	258.5	2	258.6	2
WBTSAE	AB1811	7	1	11	2	20181120	0057	26.499N	76.346W	1485	1500	4.225	34.998	2	34.996	2	254.3	2	253.9	2

WBTSAE	AB1811	7	1	12	2	20181120	0101	26.499N	76.346W	1336	1349	4.467	35.009	2	35.010	2	250.5	2	251.0	2
WBTSAE	AB1811	7	1	13	2	20181120	0107	26.499N	76.347W	1169	1180	5.062	35.042	2	35.041	2	234.4	2	236.3	2
WBTSAE	AB1811	7	1	14	2	20181120	0112	26.499N	76.348W	974	983	6.570	35.088	2	35.088	6	189.8	2	191.5	2
WBTSAE	AB1811	7	1	15	2	20181120	0117	26.500N	76.348W	799	805	10.019	35.298	2	35.302	2	141.7	2	141.9	2
WBTSAE	AB1811	7	1	16	2	20181120	0121	26.500N	76.347W	690	695	12.572	35.628	2	35.628	2	-999.0	9	-999.0	9
WBTSAE	AB1811	7	1	17	2	20181120	0125	26.500N	76.347W	580	584	15.212	36.039	2	36.036	2	-999.0	9	-999.0	9
WBTSAE	AB1811	7	1	18	2	20181120	0129	26.500N	76.347W	472	475	17.234	36.378	2	36.374	2	176.1	2	176.2	2
WBTSAE	AB1811	7	1	19	2	20181120	0132	26.500N	76.347W	364	367	18.737	36.598	2	36.594	2	190.4	2	191.2	2
WBTSAE	AB1811	7	1	20	2	20181120	0136	26.500N	76.347W	253	254	19.942	36.700	2	36.698	2	189.7	2	188.5	2
WBTSAE	AB1811	7	1	21	2	20181120	0140	26.500N	76.347W	164	166	23.672	36.916	2	36.911	2	199.7	2	197.9	2
WBTSAE	AB1811	7	1	22	2	20181120	0143	26.500N	76.347W	106	107	27.032	36.631	2	36.631	2	194.3	2	194.9	2
WBTSAE	AB1811	7	1	23	2	20181120	0146	26.500N	76.347W	57	57	27.772	36.610	2	36.608	2	196.3	2	194.9	2
WBTSAE	AB1811	7	1	24	2	20181120	0149	26.500N	76.347W	3	3	27.763	36.608	2	36.621	4	196.3	2	195.6	6
WBTSAE	AB1811	8	1	1	2	20181120	0512	26.507N	76.215W	4805	4892	2.197	34.871	2	34.872	2	255.5	2	255.8	2
WBTSAE	AB1811	8	1	2	2	20181120	0522	26.508N	76.214W	4425	4501	2.236	34.882	2	34.883	2	261.5	2	262.2	2
WBTSAE	AB1811	8	1	3	2	20181120	0531	26.508N	76.214W	4035	4100	2.271	34.890	2	34.891	2	250.3	2	273.7	4
WBTSAE	AB1811	8	1	4	2	20181120	0539	26.509N	76.214W	3674	3731	2.321	34.896	2	34.895	2	267.8	2	268.1	2
WBTSAE	AB1811	8	1	5	2	20181120	0548	26.509N	76.213W	3302	3350	2.479	34.908	2	34.908	2	268.8	2	269.3	2
WBTSAE	AB1811	8	1	6	2	20181120	0559	26.510N	76.212W	2813	2851	2.856	34.930	2	34.930	2	265.3	2	265.5	2
WBTSAE	AB1811	8	1	7	2	20181120	0609	26.511N	76.212W	2372	2401	3.253	34.953	2	34.954	2	262.3	2	261.2	2
WBTSAE	AB1811	8	1	8	2	20181120	0617	26.512N	76.212W	2075	2099	3.517	34.961	2	34.962	6	261.8	2	261.6	2
WBTSAE	AB1811	8	1	9	2	20181120	0624	26.512N	76.211W	1763	1782	3.881	34.982	2	34.983	2	259.0	2	257.8	6
WBTSAE	AB1811	8	1	10	2	20181120	0629	26.513N	76.211W	1591	1608	4.078	34.988	2	34.989	2	256.6	2	256.2	2
WBTSAE	AB1811	8	1	11	2	20181120	0633	26.513N	76.210W	1426	1441	4.356	34.998	2	35.002	4	252.6	2	252.3	2
WBTSAE	AB1811	8	1	12	2	20181120	0638	26.514N	76.210W	1259	1271	4.792	35.027	2	35.030	4	244.5	2	243.2	2
WBTSAE	AB1811	8	1	13	2	20181120	0642	26.514N	76.209W	1091	1101	5.536	35.062	2	35.064	2	220.5	2	220.9	2
WBTSAE	AB1811	8	1	14	2	20181120	0647	26.515N	76.209W	929	937	7.348	35.109	2	35.102	2	167.2	2	166.7	2
WBTSAE	AB1811	8	1	15	2	20181120	0651	26.515N	76.208W	819	826	9.969	35.293	2	35.296	2	141.6	2	140.3	2
WBTSAE	AB1811	8	1	16	2	20181120	0654	26.515N	76.208W	714	720	12.107	35.563	2	35.578	4	147.1	2	147.1	2
WBTSAE	AB1811	8	1	17	2	20181120	0658	26.516N	76.208W	599	604	15.057	36.014	2	36.018	2	164.1	2	163.4	2
WBTSAE	AB1811	8	1	18	2	20181120	0701	26.516N	76.208W	490	494	17.243	36.387	2	36.388	2	176.1	2	176.6	2
WBTSAE	AB1811	8	1	19	2	20181120	0705	26.517N	76.207W	382	385	18.582	36.577	2	36.578	2	189.1	2	187.9	2
WBTSAE	AB1811	8	1	20	2	20181120	0708	26.517N	76.207W	274	276	19.840	36.690	2	36.694	2	189.0	2	189.1	2
WBTSAE	AB1811	8	1	21	2	20181120	0711	26.517N	76.207W	184	185	22.257	36.895	2	36.887	2	185.2	2	195.1	4
WBTSAE	AB1811	8	1	22	2	20181120	0714	26.518N	76.206W	116	117	25.791	36.750	2	36.735	4	203.9	2	203.6	2
WBTSAE	AB1811	8	1	23	2	20181120	0716	26.518N	76.206W	64	65	27.553	36.633	2	36.634	2	196.9	2	196.9	2
WBTSAE	AB1811	8	1	24	2	20181120	0719	26.518N	76.206W	3	3	27.529	36.632	2	36.631	2	196.5	2	196.7	2
WBTSAE	AB1811	9	1	1	2	20181120	1104	26.499N	76.087W	4795	4881	2.197	34.872	2	34.870	2	255.4	2	256.0	2
WBTSAE	AB1811	9	1	2	2	20181120	1111	26.499N	76.086W	4523	4602	2.223	34.879	2	34.869	4	260.1	2	259.0	2
WBTSAE	AB1811	9	1	3	2	20181120	1121	26.499N	76.086W	4110	4178	2.258	34.888	2	34.870	4	264.7	2	265.2	2
WBTSAE	AB1811	9	1	4	2	20181120	1128	26.499N	76.085W	3782	3842	2.306	34.894	2	34.859	4	267.4	2	268.0	2
WBTSAE	AB1811	9	1	5	2	20181120	1137	26.499N	76.085W	3448	3499	2.404	34.903	2	34.902	6	269.1	2	269.3	2
WBTSAE	AB1811	9	1	6	2	20181120	1148	26.499N	76.086W	2963	3003	2.669	34.919	2	34.921	2	267.7	2	267.0	2
WBTSAE	AB1811	9	1	7	2	20181120	1159	26.499N	76.085W	2470	2501	3.099	34.943	2	34.954	4	262.6	2	263.1	2
WBTSAE	AB1811	9	1	8	2	20181120	1208	26.499N	76.086W	2076	2100	3.513	34.962	2	34.962	2	261.3	2	261.5	2
WBTSAE	AB1811	9	1	9	2	20181120	1216	26.499N	76.087W	1781	1800	3.848	34.977	2	34.979	2	258.9	2	258.4	2
WBTSAE	AB1811	9	1	10	2	20181120	1221	26.499N	76.086W	1583	1599	4.140	34.993	2	34.993	2	255.5	2	255.6	6
WBTSAE	AB1811	9	1	11	2	20181120	1227	26.499N	76.085W	1356	1369	4.524	35.013	2	35.014	2	249.3	2	249.5	2
WBTSAE	AB1811	9	1	12	2	20181120	1232	26.499N	76.086W	1193	1204	5.105	35.044	2	35.046	2	234.6	2	233.4	2
WBTSAE	AB1811	9	1	13	2	20181120	1237	26.499N	76.086W	1020	1029	6.496	35.089	2	35.090	2	186.7	2	186.7	4
WBTSAE	AB1811	9	1	14	2	20181120	1240	26.500N	76.085W	912	920	8.026	35.136	2	35.124	4	156.3	2	158.2	2
WBTSAE	AB1811	9	1	15	2	20181120	1244	26.500N	76.086W	803	810	10.339	35.330	2	35.315	4	138.2	2	138.6	2
WBTSAE	AB1811	9	1	16	2	20181120	1247	26.500N	76.085W	695	701	12.941	35.682	2	35.650	4	145.1	2	146.2	4
WBTSAE	AB1811	9	1	17	2	20181120	1250	26.500N	76.085W	588	593	15.139	36.027	2	36.029	2	164.2	2	165.2	2
WBTSAE	AB1811	9	1	18	2	20181120	1254	26.500N	76.085W	476	480	17.280	36.385	2	36.387	2	174.8	2	175.5	6
WBTSAE	AB1811	9	1	19	2	20181120	1258	26.501N	76.085W	368	371	18.691	36.591	2	36.590	2	183.5	2	183.0	2
WBTSAE	AB1811	9	1	20	2	20181120	1301	26.501N	76.086W	258	260	20.110	36.720	2	36.720	2	185.6	2	186.3	2
WBTSAE	AB1811	9	1	21	2	20181120	1303	26.500N	76.087W	170	171	23.204	36.924	2	36.923	2	194.9	2	195.5	2
WBTSAE	AB1811	9	1	22	2	20181120	1306	26.500N	76.087W	95	96	27.477	36.668	2	36.669	6	196.3	2	196.7	2
WBTSAE	AB1811	9	1	23	2	20181120	1308	26.501N	76.088W	45	45	27.469	36.667	2	36.666	2	197.5	2	197.0	2
WBTSAE	AB1811	9	1	24	2	20181120	1310	26.501N	76.088W	4	4	27.461	36.667	2	36.667	2	196.4	2	196.5	2
WBTSAE	AB1811	10	1	1	2	20181120	1640	26.509N	75.903W	4731	4816	2.168	34.869	2	34.871	2	254.3	2	255.7	2
WBTSAE	AB1811	10	1	2	2	20181120	1647	26.509N	75.904W	4454	4531	2.218	34.880	2	34.880	2	260.0	2	259.4	2
WBTSAE	AB1811	10	1	3	2	20181120	1654	26.509N	75.905W	4183	4252	2.233	34.885	2	34.884	2	263.2	2	262.9	2
WBTSAE	AB1811	10	1	4	2	20181120	1701	26.510N	75.905W	3916	3979	2.259	34.890	2	34.891	2	265.7	2	265.7	2
WBTSAE	AB1811	10	1	5	2	20181120	1708	26.511N	75.905W	3641	3697	2.311	34.896	2	34.895	2	267.8	2	268.0	2

WBTSAE	AB1811	10	1	6	2	20181120	1718	26.512N	75.904W	3155	3200	2.496	34.910	2	34.909	2	268.8	2	267.9	2
WBTSAE	AB1811	10	1	7	2	20181120	1729	26.513N	75.903W	2662	2697	2.878	34.931	2	34.936	4	264.7	2	264.3	6
WBTSAE	AB1811	10	1	8	2	20181120	1738	26.514N	75.903W	2224	2250	3.301	34.954	2	34.954	2	261.5	2	261.1	6
WBTSAE	AB1811	10	1	9	2	20181120	1746	26.514N	75.902W	1879	1900	3.744	34.971	2	34.969	2	260.0	2	259.8	2
WBTSAE	AB1811	10	1	10	2	20181120	1753	26.515N	75.902W	1632	1649	4.074	34.988	2	34.988	2	256.5	2	256.2	2
WBTSAE	AB1811	10	1	11	2	20181120	1800	26.515N	75.901W	1374	1388	4.481	35.006	2	35.006	2	250.5	2	250.3	2
WBTSAE	AB1811	10	1	12	2	20181120	1805	26.516N	75.901W	1203	1215	5.240	35.050	2	35.560	4	223.2	2	209.2	4
WBTSAE	AB1811	10	1	13	2	20181120	1810	26.516N	75.900W	1041	1050	6.516	35.090	2	35.089	2	188.2	2	189.6	2
WBTSAE	AB1811	10	1	14	2	20181120	1814	26.516N	75.901W	929	937	8.099	35.136	2	35.137	2	153.4	2	154.7	2
WBTSAE	AB1811	10	1	15	2	20181120	1818	26.516N	75.901W	819	826	10.590	35.359	2	35.360	6	140.9	2	140.4	2
WBTSAE	AB1811	10	1	16	2	20181120	1822	26.516N	75.902W	710	715	12.986	35.689	2	35.683	2	151.9	2	149.4	2
WBTSAE	AB1811	10	1	17	2	20181120	1826	26.516N	75.902W	601	606	15.643	36.111	2	36.110	2	167.4	2	168.2	2
WBTSAE	AB1811	10	1	18	2	20181120	1829	26.516N	75.903W	492	496	17.619	36.444	2	36.443	2	178.3	2	178.9	2
WBTSAE	AB1811	10	1	19	2	20181120	1833	26.516N	75.903W	382	385	19.052	36.623	2	36.627	2	187.0	2	187.9	2
WBTSAE	AB1811	10	1	20	2	20181120	1836	26.517N	75.904W	274	276	20.011	36.710	2	36.709	2	187.8	2	187.3	2
WBTSAE	AB1811	10	1	21	2	20181120	1839	26.517N	75.905W	185	186	21.881	36.865	2	36.867	2	195.0	2	193.9	2
WBTSAE	AB1811	10	1	22	2	20181120	1842	26.517N	75.905W	119	120	25.868	36.708	2	36.721	4	202.1	2	203.8	4
WBTSAE	AB1811	10	1	23	2	20181120	1844	26.517N	75.906W	70	70	27.538	36.689	2	36.688	2	196.6	2	196.7	2
WBTSAE	AB1811	10	1	24	2	20181120	1848	26.517N	75.906W	3	3	27.848	36.686	2	36.686	2	196.3	2	195.6	2
WBTSAE	AB1811	11	1	1	2	20181120	2218	26.500N	75.704W	4672	4756	2.209	34.875	2	34.876	2	257.2	2	259.0	2
WBTSAE	AB1811	11	1	2	2	20181120	2226	26.499N	75.703W	4349	4423	2.244	34.884	2	34.883	2	262.9	2	263.8	2
WBTSAE	AB1811	11	1	3	2	20181120	2234	26.500N	75.704W	4008	4073	2.253	34.889	2	34.888	2	265.4	2	266.7	2
WBTSAE	AB1811	11	1	4	2	20181120	2241	26.500N	75.705W	3685	3742	2.291	34.894	2	34.893	2	267.4	2	268.7	2
WBTSAE	AB1811	11	1	5	2	20181120	2248	26.500N	75.706W	3353	3402	2.351	34.900	2	34.901	6	268.8	2	269.7	2
WBTSAE	AB1811	11	1	6	2	20181120	2259	26.500N	75.707W	2840	2878	2.654	34.919	2	34.918	2	267.5	2	269.7	2
WBTSAE	AB1811	11	1	7	2	20181120	2308	26.500N	75.709W	2436	2467	3.039	34.941	2	34.941	2	263.2	2	263.6	2
WBTSAE	AB1811	11	1	8	2	20181120	2316	26.500N	75.710W	2029	2053	3.487	34.963	2	34.961	2	251.5	2	283.5	4
WBTSAE	AB1811	11	1	9	2	20181120	2323	26.500N	75.711W	1726	1745	3.828	34.974	2	34.975	2	259.2	2	260.8	6
WBTSAE	AB1811	11	1	10	2	20181120	2329	26.499N	75.711W	1520	1536	4.192	34.995	2	34.993	2	254.5	2	255.3	2
WBTSAE	AB1811	11	1	11	2	20181120	2333	26.499N	75.712W	1353	1366	4.557	35.016	2	35.014	2	248.5	2	250.4	2
WBTSAE	AB1811	11	1	12	2	20181120	2337	26.499N	75.712W	1183	1195	5.124	35.044	2	35.044	2	234.1	2	235.4	2
WBTSAE	AB1811	11	1	13	2	20181120	2342	26.499N	75.713W	1016	1025	7.481	35.113	2	35.113	2	162.9	2	170.6	4
WBTSAE	AB1811	11	1	14	2	20181120	2344	26.499N	75.713W	916	924	9.368	35.232	2	35.229	2	142.0	2	143.2	2
WBTSAE	AB1811	11	1	15	2	20181120	2348	26.499N	75.714W	798	805	11.947	35.544	2	35.540	2	146.8	2	147.3	2
WBTSAE	AB1811	11	1	16	2	20181120	2351	26.499N	75.714W	689	695	14.229	35.881	2	35.888	2	157.9	2	159.0	2
WBTSAE	AB1811	11	1	17	2	20181120	2354	26.499N	75.714W	580	585	16.486	36.260	2	36.257	2	172.5	2	173.3	2
WBTSAE	AB1811	11	1	18	2	20181120	2357	26.499N	75.715W	463	467	18.288	36.543	2	36.539	2	181.7	2	181.8	2
WBTSAE	AB1811	11	1	19	2	20181121	0001	26.499N	75.715W	363	366	19.077	36.627	2	36.629	6	-999.0	9	-999.0	9
WBTSAE	AB1811	11	1	20	2	20181121	0004	26.500N	75.716W	254	256	20.264	36.733	2	36.728	2	181.1	2	191.7	4
WBTSAE	AB1811	11	1	21	2	20181121	0007	26.500N	75.717W	164	165	23.205	36.889	2	36.889	2	208.5	2	210.7	2
WBTSAE	AB1811	11	1	22	2	20181121	0009	26.500N	75.717W	109	110	25.914	36.718	2	36.723	2	207.4	2	209.1	2
WBTSAE	AB1811	11	1	23	2	20181121	0011	26.500N	75.717W	57	57	27.635	36.667	2	36.682	4	196.3	2	197.1	2
WBTSAE	AB1811	11	1	24	2	20181121	0013	26.500N	75.718W	3	3	27.626	36.635	2	36.635	2	197.1	2	197.1	2
WBTSAE	AB1811	12	1	1	2	20181121	0324	26.502N	75.501W	4667	4750	2.201	34.874	2	34.873	2	256.5	2	257.4	6
WBTSAE	AB1811	12	1	2	2	20181121	0331	26.502N	75.501W	4374	4449	2.235	34.882	2	34.879	4	262.2	2	262.7	2
WBTSAE	AB1811	12	1	3	2	20181121	0338	26.501N	75.501W	4085	4152	2.261	34.888	2	34.886	4	265.2	2	264.5	2
WBTSAE	AB1811	12	1	4	2	20181121	0345	26.501N	75.501W	3790	3849	2.302	34.894	2	34.892	2	267.5	2	268.5	2
WBTSAE	AB1811	12	1	5	2	20181121	0353	26.500N	75.501W	3497	3550	2.354	34.900	2	34.898	2	268.7	2	269.1	2
WBTSAE	AB1811	12	1	6	2	20181121	0403	26.500N	75.500W	3059	3102	2.545	34.912	2	34.911	2	268.5	2	268.9	2
WBTSAE	AB1811	12	1	7	2	20181121	0412	26.500N	75.500W	2666	2701	2.820	34.928	2	34.926	4	265.6	2	266.0	2
WBTSAE	AB1811	12	1	8	2	20181121	0421	26.500N	75.500W	2322	2350	3.148	34.946	2	-999.000	9	-999.0	9	-999.0	9
WBTSAE	AB1811	12	1	9	2	20181121	0430	26.500N	75.500W	1979	2002	3.536	34.962	2	34.959	4	261.1	2	261.6	2
WBTSAE	AB1811	12	1	10	2	20181121	0438	26.500N	75.500W	1681	1699	3.954	34.983	2	34.981	2	257.8	2	257.4	2
WBTSAE	AB1811	12	1	11	2	20181121	0444	26.500N	75.500W	1434	1448	4.450	35.010	2	35.008	2	251.3	2	250.8	2
WBTSAE	AB1811	12	1	12	2	20181121	0451	26.500N	75.500W	1199	1210	5.128	35.044	2	35.046	2	233.1	2	234.8	2
WBTSAE	AB1811	12	1	13	2	20181121	0456	26.501N	75.501W	1026	1036	7.596	35.116	2	35.114	2	163.4	2	165.3	6
WBTSAE	AB1811	12	1	14	2	20181121	0500	26.501N	75.501W	918	926	9.731	35.251	2	35.250	2	138.2	2	138.6	2
WBTSAE	AB1811	12	1	15	2	20181121	0503	26.502N	75.501W	808	815	11.633	35.497	2	35.492	2	144.2	2	144.1	2
WBTSAE	AB1811	12	1	16	2	20181121	0507	26.502N	75.501W	697	703	14.563	35.934	2	35.923	4	162.5	2	163.3	2
WBTSAE	AB1811	12	1	17	2	20181121	0510	26.502N	75.501W	592	597	16.741	36.294	2	36.285	4	173.4	2	173.1	2
WBTSAE	AB1811	12	1	18	2	20181121	0514	26.502N	75.501W	482	486	18.636	36.579	2	36.575	2	188.6	2	189.9	2
WBTSAE	AB1811	12	1	19	2	20181121	0517	26.503N	75.501W	372	375	19.455	36.683	2	36.679	2	206.6	2	208.4	2
WBTSAE	AB1811	12	1	20	2	20181121	0521	26.503N	75.502W	264	266	20.430	36.766	2	36.775	6	200.8	2	200.7	2
WBTSAE	AB1811	12	1	21	2	20181121	0524	26.503N	75.502W	174	175	22.302	36.854	2	36.853	2	186.8	2	202.5	4
WBTSAE	AB1811	12	1	22	2	20181121	0527	26.503N	75.502W	85	86	27.294	36.631	2	36.631	2	197.1	2	197.8	2
WBTSAE	AB1811	12	1	23	2	20181121	0530	26.504N	75.502W	35	35	27.531	36.660	2	36.658	2	197.1	2	197.2	2

WBTSAE	AB1811	12	1	24	2	20181121	0532	26.504N	75.502W	2	3	27.344	36.545	2	36.548	2	196.4	2	197.3	2
WBTSAE	AB1811	13	1	1	2	20181121	0845	26.503N	75.301W	4630	4712	2.165	34.870	2	34.870	2	255.9	2	257.0	2
WBTSAE	AB1811	13	1	2	2	20181121	0853	26.502N	75.301W	4286	4358	2.219	34.882	2	34.881	2	262.0	2	261.7	6
WBTSAE	AB1811	13	1	3	2	20181121	0901	26.502N	75.302W	3961	4024	2.247	34.889	2	34.888	2	265.4	2	265.7	2
WBTSAE	AB1811	13	1	4	2	20181121	0909	26.503N	75.302W	3634	3690	2.293	34.895	2	34.894	2	267.7	2	268.6	2
WBTSAE	AB1811	13	1	5	2	20181121	0916	26.504N	75.303W	3301	3349	2.377	34.902	2	34.900	2	269.3	2	270.1	2
WBTSAE	AB1811	13	1	6	2	20181121	0926	26.504N	75.304W	2811	2849	2.749	34.924	2	34.924	2	266.5	2	267.5	2
WBTSAE	AB1811	13	1	7	2	20181121	0934	26.505N	75.304W	2470	2501	3.085	34.943	2	34.942	2	262.6	2	263.7	2
WBTSAE	AB1811	13	1	8	2	20181121	0942	26.506N	75.305W	2077	2101	3.480	34.960	2	34.958	2	261.6	2	262.5	2
WBTSAE	AB1811	13	1	9	2	20181121	0947	26.507N	75.305W	1829	1850	3.773	34.973	2	34.974	6	259.7	2	260.6	2
WBTSAE	AB1811	13	1	10	2	20181121	0953	26.507N	75.306W	1584	1600	4.137	34.991	2	34.991	2	255.6	2	256.3	2
WBTSAE	AB1811	13	1	11	2	20181121	0959	26.508N	75.306W	1376	1390	4.519	35.010	2	35.014	4	249.6	2	249.4	2
WBTSAE	AB1811	13	1	12	2	20181121	1003	26.508N	75.307W	1208	1220	5.382	35.056	2	35.055	2	225.2	2	227.4	2
WBTSAE	AB1811	13	1	13	2	20181121	1008	26.509N	75.307W	1040	1050	7.096	35.100	2	35.100	2	174.7	2	176.5	2
WBTSAE	AB1811	13	1	14	2	20181121	1011	26.509N	75.307W	932	941	8.912	35.196	2	35.193	2	147.1	2	147.8	6
WBTSAE	AB1811	13	1	15	2	20181121	1015	26.509N	75.308W	823	830	11.751	35.513	2	35.498	4	146.0	2	144.5	2
WBTSAE	AB1811	13	1	16	2	20181121	1018	26.509N	75.308W	715	721	14.679	35.949	2	35.937	4	163.4	2	163.0	2
WBTSAE	AB1811	13	1	17	2	20181121	1022	26.510N	75.308W	605	610	17.176	36.366	2	36.356	4	176.9	2	178.1	2
WBTSAE	AB1811	13	1	18	2	20181121	1025	26.510N	75.309W	497	500	18.648	36.563	2	36.561	2	192.4	2	193.0	2
WBTSAE	AB1811	13	1	19	2	20181121	1029	26.510N	75.309W	387	390	19.550	36.686	2	36.684	2	206.0	2	206.8	2
WBTSAE	AB1811	13	1	20	2	20181121	1032	26.511N	75.309W	279	281	20.310	36.760	2	36.755	2	202.2	2	202.6	2
WBTSAE	AB1811	13	1	21	2	20181121	1035	26.511N	75.310W	189	190	21.620	36.849	2	36.844	2	194.5	2	195.8	2
WBTSAE	AB1811	13	1	22	2	20181121	1038	26.511N	75.310W	120	121	25.837	36.649	2	36.651	6	184.2	2	183.3	4
WBTSAE	AB1811	13	1	23	2	20181121	1040	26.511N	75.310W	70	70	27.533	36.680	2	36.678	2	196.5	2	197.4	2
WBTSAE	AB1811	13	1	24	2	20181121	1044	26.511N	75.310W	4	4	27.334	36.503	2	36.502	2	195.3	2	196.3	2
WBTSAE	AB1811	14	1	1	2	20181121	1547	26.504N	75.094W	4598	4679	2.181	34.873	2	34.874	2	256.2	2	257.0	2
WBTSAE	AB1811	14	1	2	2	20181121	1554	26.505N	75.095W	4306	4379	2.219	34.882	2	34.881	2	261.5	2	260.2	2
WBTSAE	AB1811	14	1	3	2	20181121	1601	26.507N	75.096W	4023	4088	2.228	34.887	2	34.885	2	263.9	2	264.4	2
WBTSAE	AB1811	14	1	4	2	20181121	1608	26.509N	75.097W	3739	3797	2.274	34.892	2	34.889	4	266.8	2	266.9	2
WBTSAE	AB1811	14	1	5	2	20181121	1615	26.510N	75.098W	3447	3499	2.339	34.899	2	34.898	2	268.3	2	269.9	2
WBTSAE	AB1811	14	1	6	2	20181121	1626	26.513N	75.099W	2962	3003	2.607	34.916	2	34.910	4	-999.0	9	-999.0	9
WBTSAE	AB1811	14	1	7	2	20181121	1635	26.514N	75.099W	2618	2651	2.928	34.934	2	34.902	4	264.4	2	263.4	2
WBTSAE	AB1811	14	1	8	2	20181121	1644	26.517N	75.099W	2224	2251	3.309	34.953	2	34.954	2	261.9	2	261.6	2
WBTSAE	AB1811	14	1	9	2	20181121	1653	26.519N	75.098W	1803	1823	3.850	34.975	2	34.976	2	259.1	2	259.3	2
WBTSAE	AB1811	14	1	10	2	20181121	1700	26.519N	75.099W	1534	1549	4.264	34.998	2	34.997	2	253.7	2	253.4	6
WBTSAE	AB1811	14	1	11	2	20181121	1706	26.520N	75.099W	1343	1357	4.698	35.021	2	35.022	2	245.8	2	245.0	2
WBTSAE	AB1811	14	1	12	2	20181121	1710	26.521N	75.099W	1176	1187	5.691	35.069	2	35.070	2	216.4	2	216.4	2
WBTSAE	AB1811	14	1	13	2	20181121	1716	26.522N	75.099W	1006	1015	7.846	35.123	2	35.124	2	158.5	2	158.7	6
WBTSAE	AB1811	14	1	14	2	20181121	1720	26.522N	75.099W	892	900	10.183	35.317	2	35.310	2	141.1	2	141.4	2
WBTSAE	AB1811	14	1	15	2	20181121	1723	26.523N	75.099W	804	810	12.357	35.602	2	35.599	2	147.3	2	146.0	2
WBTSAE	AB1811	14	1	16	2	20181121	1726	26.523N	75.099W	696	702	15.195	36.034	2	36.031	2	164.2	2	165.0	2
WBTSAE	AB1811	14	1	17	2	20181121	1730	26.524N	75.099W	588	593	17.199	36.374	2	36.375	6	177.5	2	176.5	2
WBTSAE	AB1811	14	1	18	2	20181121	1734	26.524N	75.099W	478	481	18.534	36.555	2	36.556	2	191.2	2	190.3	2
WBTSAE	AB1811	14	1	19	2	20181121	1737	26.525N	75.099W	367	370	19.497	36.669	2	36.668	2	199.6	2	201.9	2
WBTSAE	AB1811	14	1	20	2	20181121	1741	26.525N	75.099W	269	271	20.550	36.756	2	36.757	2	191.5	2	191.5	2
WBTSAE	AB1811	14	1	21	2	20181121	1744	26.526N	75.099W	171	172	23.445	36.858	2	36.857	2	181.8	2	193.0	4
WBTSAE	AB1811	14	1	22	2	20181121	1746	26.526N	75.099W	104	105	27.387	36.445	2	36.446	2	195.2	2	194.6	2
WBTSAE	AB1811	14	1	23	2	20181121	1749	26.527N	75.099W	55	56	27.413	36.433	2	36.432	2	194.5	2	196.2	2
WBTSAE	AB1811	14	1	24	2	20181121	1751	26.527N	75.099W	2	2	27.508	36.435	2	36.437	2	194.8	2	194.2	2
WBTSAE	AB1811	15	1	1	2	20181121	2114	26.496N	74.813W	4525	4604	2.087	34.863	2	34.863	6	252.2	2	253.4	2
WBTSAE	AB1811	15	1	2	2	20181121	2122	26.496N	74.814W	4202	4272	2.208	34.882	2	34.883	2	262.0	2	261.0	6
WBTSAE	AB1811	15	1	3	2	20181121	2129	26.495N	74.815W	3889	3951	2.246	34.889	2	34.888	2	265.5	2	264.9	2
WBTSAE	AB1811	15	1	4	2	20181121	2136	26.495N	74.815W	3569	3624	2.304	34.896	2	34.894	2	267.3	2	268.5	2
WBTSAE	AB1811	15	1	5	2	20181121	2143	26.495N	74.816W	3254	3301	2.449	34.907	2	34.907	2	267.6	2	267.4	2
WBTSAE	AB1811	15	1	6	2	20181121	2154	26.494N	74.817W	2763	2800	2.792	34.927	2	34.926	2	265.4	2	265.5	2
WBTSAE	AB1811	15	1	7	2	20181121	2202	26.495N	74.817W	2371	2400	3.143	34.946	2	34.945	2	251.6	2	284.1	4
WBTSAE	AB1811	15	1	8	2	20181121	2207	26.495N	74.817W	2127	2152	3.419	34.959	2	34.958	2	261.9	2	261.8	2
WBTSAE	AB1811	15	1	9	2	20181121	2212	26.495N	74.818W	1900	1921	3.681	34.969	2	34.968	2	260.6	2	259.7	2
WBTSAE	AB1811	15	1	10	2	20181121	2217	26.495N	74.818W	1602	1619	4.142	34.994	2	34.993	2	254.6	2	255.1	2
WBTSAE	AB1811	15	1	11	2	20181121	2222	26.494N	74.818W	1381	1395	4.600	35.015	2	35.015	2	246.9	2	248.2	2
WBTSAE	AB1811	15	1	12	2	20181121	2226	26.494N	74.818W	1215	1227	5.378	35.057	2	35.058	2	225.4	2	227.0	6
WBTSAE	AB1811	15	1	13	2	20181121	2230	26.494N	74.819W	1045	1055	7.048	35.099	2	35.109	4	175.6	2	177.5	2
WBTSAE	AB1811	15	1	14	2	20181121	2233	26.494N	74.819W	937	945	8.406	35.126	2	35.122	2	143.8	2	143.8	2
WBTSAE	AB1811	15	1	15	2	20181121	2236	26.495N	74.819W	828	835	10.879	35.395	2	35.386	4	138.9	2	137.9	2
WBTSAE	AB1811	15	1	16	2	20181121	2239	26.495N	74.819W	719	725	13.557	35.784	2	35.776	6	155.4	2	154.0	2
WBTSAE	AB1811	15	1	17	2	20181121	2242	26.495N	74.819W	610	615	15.942	36.172	2	36.167	2	168.3	2	167.8	2

WBTSAE	AB1811	15	1	18	2	20181121	2245	26.495N	74.819W	501	505	17.914	36.486	2	36.489	2	181.2	2	180.9	2
WBTSAE	AB1811	15	1	19	2	20181121	2247	26.495N	74.819W	403	406	19.134	36.652	2	36.652	2	195.3	2	205.8	4
WBTSAE	AB1811	15	1	20	2	20181121	2250	26.495N	74.819W	285	287	20.079	36.710	2	36.707	2	193.7	2	193.9	2
WBTSAE	AB1811	15	1	21	2	20181121	2253	26.495N	74.819W	194	195	22.804	36.895	2	36.899	2	191.7	2	107.6	4
WBTSAE	AB1811	15	1	22	2	20181121	2255	26.494N	74.819W	115	116	27.402	36.500	2	36.504	2	186.4	2	195.5	4
WBTSAE	AB1811	15	1	23	2	20181121	2257	26.494N	74.819W	66	66	27.350	36.449	2	36.448	2	190.3	2	203.7	4
WBTSAE	AB1811	15	1	24	2	20181121	2300	26.493N	74.819W	3	3	27.391	36.447	2	36.446	2	196.0	2	195.8	2
WBTSAE	AB1811	16	1	1	2	20181122	0237	26.499N	74.516W	4475	4552	2.183	34.875	2	34.878	2	257.5	2	257.7	2
WBTSAE	AB1811	16	1	2	2	20181122	0247	26.500N	74.516W	4132	4200	2.212	34.884	2	34.884	2	262.7	2	262.9	2
WBTSAE	AB1811	16	1	3	2	20181122	0252	26.500N	74.516W	3937	4000	2.224	34.887	2	34.888	2	264.1	2	264.9	2
WBTSAE	AB1811	16	1	4	2	20181122	0300	26.501N	74.515W	3625	3681	2.273	34.894	2	34.894	2	267.3	2	266.7	2
WBTSAE	AB1811	16	1	5	2	20181122	0307	26.501N	74.515W	3351	3400	2.370	34.902	2	34.903	2	268.9	2	269.8	2
WBTSAE	AB1811	16	1	6	2	20181122	0316	26.502N	74.515W	2960	3000	2.631	34.918	2	34.919	2	267.7	2	268.2	6
WBTSAE	AB1811	16	1	7	2	20181122	0325	26.502N	74.515W	2568	2601	2.990	34.937	2	34.895	4	262.9	2	263.7	2
WBTSAE	AB1811	16	1	8	2	20181122	0335	26.502N	74.514W	2175	2201	3.406	34.957	2	34.958	2	261.5	2	262.0	2
WBTSAE	AB1811	16	1	9	2	20181122	0343	26.502N	74.514W	1831	1851	3.810	34.974	2	34.976	6	259.1	2	259.7	2
WBTSAE	AB1811	16	1	10	2	20181122	0351	26.502N	74.514W	1535	1551	4.252	34.998	2	34.998	2	253.6	2	254.3	2
WBTSAE	AB1811	16	1	11	2	20181122	0357	26.502N	74.515W	1342	1355	4.802	35.027	2	-999.000	9	-999.0	9	-999.0	9
WBTSAE	AB1811	16	1	12	2	20181122	0401	26.503N	74.515W	1174	1185	5.644	35.063	2	35.065	2	208.0	2	217.8	4
WBTSAE	AB1811	16	1	13	2	20181122	0406	26.503N	74.515W	1006	1015	7.707	35.109	2	35.110	2	159.1	2	160.3	2
WBTSAE	AB1811	16	1	14	2	20181122	0410	26.503N	74.515W	897	905	9.616	35.244	2	35.245	2	138.1	2	137.7	2
WBTSAE	AB1811	16	1	15	2	20181122	0414	26.504N	74.515W	789	795	11.182	35.438	2	35.436	2	139.8	2	138.9	2
WBTSAE	AB1811	16	1	16	2	20181122	0418	26.504N	74.515W	680	685	13.821	35.826	2	35.822	2	154.5	2	153.5	2
WBTSAE	AB1811	16	1	17	2	20181122	0422	26.505N	74.515W	571	575	16.229	36.208	2	36.209	2	174.2	2	174.1	6
WBTSAE	AB1811	16	1	18	2	20181122	0426	26.505N	74.515W	463	466	18.009	36.499	2	36.501	2	181.8	2	183.1	2
WBTSAE	AB1811	16	1	19	2	20181122	0429	26.505N	74.515W	353	355	19.239	36.642	2	36.644	6	198.2	2	197.0	2
WBTSAE	AB1811	16	1	20	2	20181122	0433	26.506N	74.515W	244	245	20.704	36.771	2	36.777	2	189.6	2	189.8	2
WBTSAE	AB1811	16	1	21	2	20181122	0437	26.506N	74.516W	155	156	24.137	36.884	2	36.883	2	195.0	2	197.6	4
WBTSAE	AB1811	16	1	22	2	20181122	0439	26.506N	74.516W	95	95	27.251	36.680	2	36.682	2	196.0	2	197.1	2
WBTSAE	AB1811	16	1	23	2	20181122	0442	26.507N	74.516W	46	46	27.320	36.554	2	36.558	2	197.1	2	197.4	2
WBTSAE	AB1811	16	1	24	2	20181122	0445	26.507N	74.516W	2	2	27.271	36.456	2	36.454	2	197.1	2	196.8	2
WBTSAE	AB1811	17	1	1	2	20181122	0816	26.501N	74.250W	4539	4619	2.188	34.875	2	34.876	2	258.4	2	257.8	2
WBTSAE	AB1811	17	1	2	2	20181122	0825	26.500N	74.252W	4206	4276	2.224	34.884	2	34.887	2	262.8	2	263.1	2
WBTSAE	AB1811	17	1	3	2	20181122	0834	26.501N	74.253W	3888	3950	2.249	34.890	2	34.890	2	265.7	2	266.1	6
WBTSAE	AB1811	17	1	4	2	20181122	0842	26.501N	74.254W	3571	3625	2.300	34.896	2	34.896	2	268.2	2	268.5	2
WBTSAE	AB1811	17	1	5	2	20181122	0849	26.500N	74.256W	3253	3300	2.411	34.905	2	34.904	2	269.1	2	269.6	2
WBTSAE	AB1811	17	1	6	2	20181122	0858	26.500N	74.257W	2862	2901	2.734	34.923	2	34.921	4	266.3	2	267.0	2
WBTSAE	AB1811	17	1	7	2	20181122	0907	26.502N	74.258W	2469	2500	3.099	34.942	2	34.934	4	263.3	2	264.0	2
WBTSAE	AB1811	17	1	8	2	20181122	0915	26.503N	74.259W	2077	2101	3.492	34.959	2	34.938	4	261.6	2	262.6	2
WBTSAE	AB1811	17	1	9	2	20181122	0922	26.504N	74.260W	1782	1801	3.839	34.976	2	34.929	4	258.7	2	259.9	2
WBTSAE	AB1811	17	1	10	2	20181122	0927	26.504N	74.261W	1585	1602	4.187	34.996	2	34.996	2	254.7	2	254.9	2
WBTSAE	AB1811	17	1	11	2	20181122	0932	26.505N	74.261W	1390	1404	4.569	35.014	2	35.015	2	248.0	2	248.6	2
WBTSAE	AB1811	17	1	12	2	20181122	0938	26.504N	74.263W	1187	1198	5.392	35.058	2	35.058	6	224.7	2	226.1	2
WBTSAE	AB1811	17	1	13	2	20181122	0942	26.504N	74.264W	1039	1049	6.999	35.094	2	35.085	4	171.4	2	172.7	4
WBTSAE	AB1811	17	1	14	2	20181122	0946	26.504N	74.264W	928	937	8.850	35.173	2	35.151	4	141.9	2	143.2	2
WBTSAE	AB1811	17	1	15	2	20181122	0950	26.504N	74.264W	818	825	11.058	35.424	2	35.426	2	143.1	2	141.1	6
WBTSAE	AB1811	17	1	16	2	20181122	0954	26.505N	74.265W	710	716	13.447	35.769	2	35.772	2	187.3	2	161.9	4
WBTSAE	AB1811	17	1	17	2	20181122	0958	26.505N	74.265W	600	605	15.676	36.130	2	36.133	2	165.8	2	167.2	2
WBTSAE	AB1811	17	1	18	2	20181122	1001	26.506N	74.265W	491	495	17.503	36.434	2	36.433	2	177.1	2	177.5	2
WBTSAE	AB1811	17	1	19	2	20181122	1005	26.506N	74.266W	383	386	18.743	36.596	2	36.596	2	179.5	2	188.9	4
WBTSAE	AB1811	17	1	20	2	20181122	1009	26.507N	74.266W	273	275	19.732	36.684	2	36.683	2	190.5	2	193.6	4
WBTSAE	AB1811	17	1	21	2	20181122	1012	26.507N	74.266W	185	187	21.656	36.842	2	36.842	2	187.4	2	197.1	4
WBTSAE	AB1811	17	1	22	2	20181122	1015	26.508N	74.266W	120	121	24.522	36.877	2	36.876	6	189.6	2	203.1	4
WBTSAE	AB1811	17	1	23	2	20181122	1018	26.508N	74.267W	70	70	27.353	36.665	2	36.664	2	197.5	2	197.5	2
WBTSAE	AB1811	17	1	24	2	20181122	1022	26.509N	74.267W	5	5	27.329	36.666	2	36.665	2	196.6	2	197.1	2
WBTSAE	AB1811	18	1	1	2	20181122	1447	26.500N	73.866W	4735	4820	2.191	34.872	2	34.883	4	257.1	2	257.4	2
WBTSAE	AB1811	18	1	2	2	20181122	1457	26.500N	73.867W	4376	4450	2.236	34.883	2	34.881	2	262.6	2	261.5	2
WBTSAE	AB1811	18	1	3	2	20181122	1504	26.500N	73.867W	4064	4131	2.251	34.888	2	34.899	4	264.9	2	266.0	2
WBTSAE	AB1811	18	1	4	2	20181122	1511	26.500N	73.867W	3762	3821	2.312	34.896	2	34.895	2	252.1	2	306.4	4
WBTSAE	AB1811	18	1	5	2	20181122	1518	26.500N	73.867W	3449	3500	2.417	34.904	2	34.903	2	253.4	2	277.5	4
WBTSAE	AB1811	18	1	6	2	20181122	1526	26.501N	73.867W	3057	3100	2.643	34.919	2	34.917	2	265.8	2	265.7	2
WBTSAE	AB1811	18	1	7	2	20181122	1535	26.501N	73.866W	2666	2701	2.949	34.936	2	34.935	2	264.1	2	265.5	2
WBTSAE	AB1811	18	1	8	2	20181122	1544	26.501N	73.866W	2273	2301	3.319	34.954	2	34.953	2	261.8	2	262.3	2
WBTSAE	AB1811	18	1	9	2	20181122	1551	26.501N	73.866W	1929	1950	3.686	34.968	2	34.968	2	260.3	2	260.7	6
WBTSAE	AB1811	18	1	10	2	20181122	1557	26.501N	73.866W	1584	1601	4.214	34.997	2	34.995	2	245.6	2	306.9	4
WBTSAE	AB1811	18	1	11	2	20181122	1602	26.501N	73.866W	1387	1401	4.637	35.019	2	35.018	2	238.7	2	356.6	4

WBTSAE	AB1811	18	1	12	2	20181122	1606	26.501N	73.866W	1218	1230	5.334	35.055	2	35.060	4	219.5	2	331.8	4
WBTSAE	AB1811	18	1	13	2	20181122	1610	26.501N	73.866W	1051	1061	6.526	35.083	2	35.081	2	183.3	2	247.8	4
WBTSAE	AB1811	18	1	14	2	20181122	1613	26.501N	73.866W	942	950	8.261	35.150	2	35.146	2	149.1	2	209.4	4
WBTSAE	AB1811	18	1	15	2	20181122	1616	26.501N	73.866W	833	840	10.161	35.308	2	35.308	2	137.2	2	137.6	2
WBTSAE	AB1811	18	1	16	2	20181122	1619	26.502N	73.866W	724	730	12.692	35.652	2	35.649	2	141.2	2	203.3	4
WBTSAE	AB1811	18	1	17	2	20181122	1623	26.502N	73.866W	616	621	15.006	36.011	2	36.016	2	158.2	2	271.1	4
WBTSAE	AB1811	18	1	18	2	20181122	1626	26.502N	73.866W	506	510	16.984	36.333	2	36.328	2	166.1	2	248.3	4
WBTSAE	AB1811	18	1	19	2	20181122	1629	26.501N	73.866W	399	402	18.580	36.581	2	36.578	2	187.3	2	281.5	4
WBTSAE	AB1811	18	1	20	2	20181122	1632	26.501N	73.866W	289	291	19.415	36.665	2	36.664	2	193.2	2	359.7	4
WBTSAE	AB1811	18	1	21	2	20181122	1634	26.501N	73.866W	199	200	20.855	36.776	2	36.773	6	189.5	2	289.7	4
WBTSAE	AB1811	18	1	22	2	20181122	1637	26.501N	73.865W	110	111	24.576	36.868	2	36.860	4	196.0	2	308.0	4
WBTSAE	AB1811	18	1	23	2	20181122	1639	26.501N	73.865W	60	60	27.132	36.656	2	36.611	4	190.7	2	366.3	4
WBTSAE	AB1811	19	1	1	2	20181122	2113	26.507N	73.518W	4918	5008	2.141	34.864	2	34.864	2	-999.0	9	-999.0	9
WBTSAE	AB1811	19	1	2	2	20181122	2124	26.508N	73.520W	4598	4679	2.241	34.881	2	34.881	6	-999.0	9	-999.0	9
WBTSAE	AB1811	19	1	3	2	20181122	2136	26.509N	73.520W	4238	4310	2.248	34.886	2	34.885	2	246.2	2	170.4	4
WBTSAE	AB1811	19	1	4	2	20181122	2142	26.509N	73.520W	3939	4003	2.291	34.893	2	34.892	2	266.0	2	264.6	2
WBTSAE	AB1811	19	1	5	2	20181122	2154	26.510N	73.520W	3607	3662	2.348	34.899	2	34.898	2	267.7	2	267.4	2
WBTSAE	AB1811	19	1	6	2	20181122	2202	26.510N	73.521W	3204	3250	2.519	34.911	2	34.910	2	268.4	2	268.0	2
WBTSAE	AB1811	19	1	7	2	20181122	2215	26.510N	73.522W	2717	2753	2.881	34.932	2	34.931	2	252.2	2	285.2	4
WBTSAE	AB1811	19	1	8	2	20181122	2229	26.510N	73.522W	2225	2251	3.339	34.954	2	34.953	2	261.9	2	259.9	2
WBTSAE	AB1811	19	1	9	2	20181122	2241	26.512N	73.521W	1830	1850	3.789	34.974	2	34.973	2	259.6	2	258.7	2
WBTSAE	AB1811	19	1	10	2	20181122	2249	26.513N	73.521W	1484	1499	4.337	35.003	2	35.002	2	252.1	2	251.5	2
WBTSAE	AB1811	19	1	11	2	20181122	2254	26.513N	73.520W	1321	1334	4.788	35.030	2	35.030	2	242.0	2	241.7	6
WBTSAE	AB1811	19	1	12	2	20181122	2303	26.513N	73.521W	1159	1170	5.492	35.066	2	35.066	2	221.4	2	221.3	2
WBTSAE	AB1811	19	1	13	2	20181122	2308	26.513N	73.522W	985	994	7.004	35.091	2	35.091	2	176.2	2	176.8	2
WBTSAE	AB1811	19	1	14	2	20181122	2311	26.513N	73.522W	877	885	8.758	35.190	2	35.187	2	149.2	2	148.7	2
WBTSAE	AB1811	19	1	15	2	20181122	2318	26.513N	73.522W	769	776	11.103	35.437	2	35.436	2	143.4	2	142.2	2
WBTSAE	AB1811	19	1	16	2	20181122	2321	26.513N	73.523W	660	665	13.555	35.784	2	35.780	2	154.0	2	152.7	2
WBTSAE	AB1811	19	1	17	2	20181122	2324	26.513N	73.523W	552	556	16.000	36.176	2	36.173	2	168.3	2	169.2	2
WBTSAE	AB1811	19	1	18	2	20181122	2332	26.512N	73.524W	442	445	17.909	36.486	2	36.485	2	182.0	2	181.6	2
WBTSAE	AB1811	19	1	19	2	20181122	2332	26.512N	73.524W	442	445	17.908	36.486	2	36.485	2	182.0	2	181.3	2
WBTSAE	AB1811	19	1	20	2	20181122	2339	26.512N	73.524W	223	225	19.760	36.686	2	36.686	2	195.1	2	196.2	2
WBTSAE	AB1811	19	1	21	2	20181122	2346	26.511N	73.525W	134	135	21.940	36.811	2	36.811	2	209.1	2	211.0	2
WBTSAE	AB1811	19	1	22	2	20181122	2347	26.512N	73.525W	84	85	26.408	36.764	2	36.773	2	193.9	2	203.1	4
WBTSAE	AB1811	19	1	23	2	20181122	2350	26.512N	73.524W	36	37	26.828	36.732	2	36.734	2	198.7	2	198.7	2
WBTSAE	AB1811	19	1	24	2	20181122	2357	26.511N	73.525W	3	3	26.854	36.657	2	36.657	6	198.6	2	198.0	2
WBTSAE	AB1811	20	1	1	2	20181123	0407	26.501N	73.134W	5028	5121	2.096	34.856	2	34.858	6	251.2	2	249.7	2
WBTSAE	AB1811	20	1	2	2	20181123	0415	26.501N	73.134W	4756	4841	2.207	34.874	2	34.880	4	257.9	2	255.8	2
WBTSAE	AB1811	20	1	3	2	20181123	0422	26.502N	73.134W	4472	4549	2.243	34.882	2	34.872	4	261.5	2	260.2	2
WBTSAE	AB1811	20	1	4	2	20181123	0430	26.502N	73.135W	4180	4250	2.260	34.887	2	34.873	4	263.4	2	261.9	2
WBTSAE	AB1811	20	1	5	2	20181123	0437	26.501N	73.134W	3913	3975	2.288	34.892	2	34.886	4	265.1	2	265.1	2
WBTSAE	AB1811	20	1	6	2	20181123	0447	26.501N	73.133W	3423	3474	2.383	34.902	2	34.903	2	268.3	2	266.6	2
WBTSAE	AB1811	20	1	7	2	20181123	0457	26.502N	73.133W	2936	2976	2.646	34.918	2	34.932	4	267.1	2	266.0	6
WBTSAE	AB1811	20	1	8	2	20181123	0507	26.502N	73.133W	2444	2475	3.102	34.943	2	34.945	2	263.0	2	262.7	2
WBTSAE	AB1811	20	1	9	2	20181123	0515	26.502N	73.133W	2028	2051	3.530	34.965	2	34.967	2	260.7	2	259.3	2
WBTSAE	AB1811	20	1	10	2	20181123	0523	26.502N	73.133W	1683	1701	4.036	34.992	2	34.994	2	256.0	2	254.7	2
WBTSAE	AB1811	20	1	11	2	20181123	0529	26.502N	73.133W	1436	1451	4.460	35.013	2	35.017	4	249.7	2	249.0	2
WBTSAE	AB1811	20	1	12	2	20181123	0535	26.502N	73.133W	1189	1201	5.355	35.064	2	35.066	2	225.8	2	226.1	2
WBTSAE	AB1811	20	1	13	2	20181123	0540	26.502N	73.133W	1021	1031	6.346	35.076	2	35.085	4	192.7	2	193.0	2
WBTSAE	AB1811	20	1	14	2	20181123	0544	26.502N	73.133W	913	921	7.747	35.113	2	35.114	2	157.5	2	157.8	2
WBTSAE	AB1811	20	1	15	2	20181123	0548	26.502N	73.133W	804	810	9.632	35.258	2	35.257	2	140.3	2	140.5	2
WBTSAE	AB1811	20	1	16	2	20181123	0552	26.501N	73.133W	693	699	12.199	35.579	2	35.576	2	143.5	2	143.2	2
WBTSAE	AB1811	20	1	17	2	20181123	0555	26.500N	73.132W	582	587	14.705	35.954	2	35.952	6	166.0	2	165.1	2
WBTSAE	AB1811	20	1	18	2	20181123	0559	26.497N	73.133W	449	453	17.255	36.389	2	36.378	4	178.6	2	178.5	2
WBTSAE	AB1811	20	1	19	2	20181123	0604	26.498N	73.134W	368	371	18.198	36.532	2	36.531	2	185.3	2	182.9	6
WBTSAE	AB1811	20	1	20	2	20181123	0607	26.499N	73.134W	259	261	19.303	36.650	2	36.651	2	189.4	2	198.6	4
WBTSAE	AB1811	20	1	21	2	20181123	0610	26.499N	73.134W	167	168	20.599	36.771	2	36.770	2	189.4	2	189.5	2
WBTSAE	AB1811	20	1	22	2	20181123	0613	26.500N	73.133W	121	122	22.400	36.894	2	-999.000	9	-999.0	9	-999.0	9
WBTSAE	AB1811	20	1	23	2	20181123	0615	26.500N	73.133W	72	73	25.240	36.831	2	36.838	2	214.6	2	216.8	2
WBTSAE	AB1811	20	1	24	2	20181123	0619	26.501N	73.132W	3	3	26.990	36.693	2	36.693	2	198.3	2	198.6	2
WBTSAE	AB1811	21	1	1	2	20181123	1220	26.497N	72.764W	5124	5221	2.072	34.852	2	34.852	2	249.8	2	248.4	2
WBTSAE	AB1811	21	1	2	2	20181123	1233	26.497N	72.763W	4756	4841	2.229	34.877	2	34.877	2	258.5	2	257.3	2
WBTSAE	AB1811	21	1	3	2	20181123	1244	26.500N	72.762W	4374	4449	2.251	34.885	2	34.884	2	261.9	2	261.4	2
WBTSAE	AB1811	21	1	4	2	20181123	1254	26.502N	72.761W	4015	4081	2.267	34.890	2	34.889	2	264.5	2	264.5	2
WBTSAE	AB1811	21	1	5	2	20181123	1303	26.503N	72.761W	3645	3701	2.319	34.897	2	34.896	2	267.4	2	267.3	2
WBTSAE	AB1811	21	1	6	2	20181123	1314	26.505N	72.761W	3153	3198	2.480	34.909	2	34.910	2	268.3	2	266.7	2

WBTSAE	AB1811	21	1	7	2	20181123	1326	26.507N	72.760W	2666	2701	2.803	34.928	2	34.929	2	265.6	2	265.1	2
WBTSAE	AB1811	21	1	8	2	20181123	1338	26.509N	72.761W	2173	2199	3.382	34.971	2	34.972	2	257.3	2	256.5	6
WBTSAE	AB1811	21	1	9	2	20181123	1344	26.510N	72.760W	1927	1949	3.674	34.985	2	34.985	6	256.7	2	255.9	2
WBTSAE	AB1811	21	1	10	2	20181123	1353	26.512N	72.761W	1586	1603	4.215	35.018	2	35.019	2	250.9	2	250.2	2
WBTSAE	AB1811	21	1	11	2	20181123	1358	26.513N	72.761W	1414	1428	4.713	35.057	2	35.058	2	241.1	2	241.4	2
WBTSAE	AB1811	21	1	12	2	20181123	1404	26.514N	72.762W	1246	1258	5.137	35.058	2	35.063	4	232.1	2	231.8	2
WBTSAE	AB1811	21	1	13	2	20181123	1409	26.514N	72.762W	1079	1088	5.896	35.077	2	35.077	2	202.0	2	201.8	4
WBTSAE	AB1811	21	1	14	2	20181123	1413	26.515N	72.762W	940	949	7.327	35.103	2	35.105	2	169.1	2	167.6	2
WBTSAE	AB1811	21	1	15	2	20181123	1417	26.515N	72.761W	819	826	8.939	35.182	2	35.186	2	143.9	2	141.9	2
WBTSAE	AB1811	21	1	16	2	20181123	1420	26.516N	72.762W	708	714	11.122	35.435	2	35.436	2	144.0	2	143.0	2
WBTSAE	AB1811	21	1	17	2	20181123	1423	26.516N	72.762W	601	606	13.530	35.780	2	35.785	2	153.3	2	152.7	2
WBTSAE	AB1811	21	1	18	2	20181123	1426	26.517N	72.761W	492	496	15.239	36.060	2	36.062	6	160.2	2	160.8	2
WBTSAE	AB1811	21	1	19	2	20181123	1429	26.517N	72.761W	381	384	16.768	36.315	2	-999.000	9	170.9	2	170.6	2
WBTSAE	AB1811	21	1	20	2	20181123	1433	26.517N	72.761W	274	276	18.970	36.625	2	36.626	2	181.7	2	181.5	6
WBTSAE	AB1811	21	1	21	2	20181123	1435	26.518N	72.761W	186	187	21.156	36.819	2	36.826	2	189.2	2	189.0	2
WBTSAE	AB1811	21	1	22	2	20181123	1438	26.518N	72.760W	107	108	22.717	36.836	2	36.833	2	200.8	2	199.8	2
WBTSAE	AB1811	21	1	23	2	20181123	1441	26.518N	72.760W	55	55	26.793	36.660	2	36.631	4	199.0	2	199.5	2
WBTSAE	AB1811	21	1	24	2	20181123	1443	26.519N	72.760W	5	5	26.786	36.662	2	36.643	4	199.0	2	198.9	2
WBTSAE	AB1811	22	1	1	2	20181124	0123	26.544N	72.376W	5173	5271	2.101	34.855	2	34.854	2	249.8	2	249.2	2
WBTSAE	AB1811	22	1	2	2	20181124	0134	26.545N	72.373W	4809	4897	2.230	34.876	2	34.871	4	257.9	2	257.2	2
WBTSAE	AB1811	22	1	3	2	20181124	0146	26.546N	72.371W	4473	4550	2.260	34.884	2	34.878	4	261.3	2	261.5	2
WBTSAE	AB1811	22	1	4	2	20181124	0155	26.549N	72.371W	4136	4204	2.270	34.889	2	34.883	4	263.4	2	264.4	2
WBTSAE	AB1811	22	1	5	2	20181124	0205	26.551N	72.370W	3788	3847	2.311	34.895	2	34.887	4	265.5	2	266.8	2
WBTSAE	AB1811	22	1	6	2	20181124	0218	26.553N	72.368W	3290	3338	2.461	34.907	2	34.879	4	266.5	2	265.5	2
WBTSAE	AB1811	22	1	7	2	20181124	0229	26.556N	72.366W	2817	2854	2.745	34.926	2	34.931	4	263.4	2	263.5	6
WBTSAE	AB1811	22	1	8	2	20181124	0243	26.558N	72.365W	2322	2351	3.204	34.957	2	34.958	2	259.4	2	258.8	2
WBTSAE	AB1811	22	1	9	2	20181124	0257	26.558N	72.362W	1831	1851	3.829	34.990	2	34.991	2	255.4	2	255.5	6
WBTSAE	AB1811	22	1	10	2	20181124	0304	26.559N	72.361W	1583	1599	4.228	35.008	2	35.009	2	251.5	2	252.0	2
WBTSAE	AB1811	22	1	11	2	20181124	0311	26.560N	72.360W	1361	1374	4.740	35.036	2	35.037	2	244.2	2	244.0	2
WBTSAE	AB1811	22	1	12	2	20181124	0317	26.561N	72.359W	1196	1207	5.319	35.060	2	35.061	2	227.6	2	228.0	2
WBTSAE	AB1811	22	1	13	2	20181124	0322	26.561N	72.358W	1027	1036	6.420	35.090	2	35.091	2	190.3	2	190.3	2
WBTSAE	AB1811	22	1	14	2	20181124	0326	26.562N	72.357W	918	926	7.486	35.102	2	35.102	2	163.5	2	162.7	6
WBTSAE	AB1811	22	1	15	2	20181124	0330	26.562N	72.357W	810	817	9.421	35.234	2	35.237	6	139.7	2	139.3	2
WBTSAE	AB1811	22	1	16	2	20181124	0334	26.563N	72.356W	701	707	11.883	35.538	2	35.541	2	144.9	2	145.7	2
WBTSAE	AB1811	22	1	17	2	20181124	0338	26.563N	72.355W	592	596	14.487	35.928	2	35.931	2	157.5	2	158.7	4
WBTSAE	AB1811	22	1	18	2	20181124	0341	26.564N	72.355W	484	487	16.783	36.309	2	36.310	2	171.5	2	173.1	2
WBTSAE	AB1811	22	1	19	2	20181124	0345	26.564N	72.354W	373	376	18.200	36.536	2	36.537	2	183.3	2	180.7	2
WBTSAE	AB1811	22	1	20	2	20181124	0349	26.564N	72.353W	266	268	19.176	36.639	2	36.639	2	190.7	2	193.4	4
WBTSAE	AB1811	22	1	21	2	20181124	0353	26.565N	72.353W	174	175	20.053	36.712	2	36.712	2	194.4	2	195.8	2
WBTSAE	AB1811	22	1	22	2	20181124	0355	26.565N	72.352W	113	114	21.854	36.794	2	36.792	2	194.5	2	204.7	4
WBTSAE	AB1811	22	1	23	2	20181124	0358	26.566N	72.352W	65	65	26.703	36.729	2	36.738	2	199.9	2	200.6	2
WBTSAE	AB1811	22	1	24	2	20181124	0402	26.567N	72.352W	7	7	26.736	36.727	2	36.727	2	199.8	2	199.6	2
WBTSAE	AB1811	23	1	1	2	20181130	0350	26.506N	76.476W	4828	4916	2.232	34.875	2	34.816	4	-999.0	9	-999.0	9
WBTSAE	AB1811	23	1	2	2	20181130	0402	26.507N	76.477W	4597	4678	2.230	34.878	2	34.881	2	-999.0	9	-999.0	9
WBTSAE	AB1811	23	1	3	2	20181130	0416	26.507N	76.477W	4228	4299	2.273	34.888	2	34.889	2	-999.0	9	-999.0	9
WBTSAE	AB1811	23	1	4	2	20181130	0423	26.508N	76.478W	3936	3999	2.294	34.892	2	34.893	2	-999.0	9	-999.0	9
WBTSAE	AB1811	23	1	5	2	20181130	0436	26.508N	76.478W	3593	3648	2.358	34.899	2	34.900	2	-999.0	9	-999.0	9
WBTSAE	AB1811	23	1	6	2	20181130	0445	26.509N	76.479W	3206	3251	2.522	34.909	2	34.914	4	-999.0	9	-999.0	9
WBTSAE	AB1811	23	1	7	2	20181130	0500	26.509N	76.480W	2719	2755	2.850	34.929	2	34.933	4	-999.0	9	-999.0	9
WBTSAE	AB1811	23	1	8	2	20181130	0516	26.510N	76.481W	2228	2255	3.333	34.957	2	34.959	6	-999.0	9	-999.0	9
WBTSAE	AB1811	23	1	9	2	20181130	0530	26.511N	76.481W	1832	1853	3.815	34.979	2	34.980	2	-999.0	9	-999.0	9
WBTSAE	AB1811	23	1	10	2	20181130	0538	26.511N	76.482W	1487	1503	4.165	34.991	2	34.993	2	-999.0	9	-999.0	9
WBTSAE	AB1811	23	1	11	2	20181130	0542	26.511N	76.482W	1324	1337	4.524	35.011	2	35.015	4	-999.0	9	-999.0	9
WBTSAE	AB1811	23	1	12	2	20181130	0553	26.512N	76.483W	1159	1170	5.160	35.046	2	35.047	2	-999.0	9	-999.0	9
WBTSAE	AB1811	23	1	13	2	20181130	0559	26.512N	76.484W	982	991	6.683	35.091	2	35.091	2	-999.0	9	-999.0	9
WBTSAE	AB1811	23	1	14	2	20181130	0603	26.512N	76.484W	878	886	8.382	35.150	2	35.152	2	-999.0	9	-999.0	9
WBTSAE	AB1811	23	1	15	2	20181130	0611	26.512N	76.485W	768	775	10.920	35.406	2	35.408	2	-999.0	9	-999.0	9
WBTSAE	AB1811	23	1	16	2	20181130	0615	26.513N	76.486W	659	664	13.509	35.769	2	35.770	2	-999.0	9	-999.0	9
WBTSAE	AB1811	23	1	17	2	20181130	0618	26.513N	76.486W	549	554	15.852	36.152	2	36.158	6	-999.0	9	-999.0	9
WBTSAE	AB1811	23	1	18	2	20181130	0627	26.513N	76.487W	443	446	17.996	36.506	2	36.508	2	-999.0	9	-999.0	9
WBTSAE	AB1811	23	1	19	2	20181130	0631	26.513N	76.488W	334	337	19.245	36.636	2	36.637	2	-999.0	9	-999.0	9
WBTSAE	AB1811	23	1	20	2	20181130	0635	26.513N	76.488W	224	225	20.929	36.791	2	36.792	2	-999.0	9	-999.0	9
WBTSAE	AB1811	23	1	21	2	20181130	0643	26.514N	76.490W	135	136	24.747	36.843	2	36.843	2	-999.0	9	-999.0	9
WBTSAE	AB1811	23	1	22	2	20181130	0646	26.514N	76.490W	85	85	27.043	36.692	2	36.693	2	-999.0	9	-999.0	9
WBTSAE	AB1811	23	1	23	2	20181130	0649	26.514N	76.490W	35	35	27.033	36.688	2	36.688	2	-999.0	9	-999.0	9
WBTSAE	AB1811	23	1	24	2	20181130	0656	26.514N	76.491W	3	3	27.013	36.687	2	36.688	2	-999.0	9	-999.0	9

WBTSAE	AB1811	24	1	1	2	20181201	1017	26.429N	78.666W	760	766	9.667	35.283	2	35.285	2	143.7	2	143.4	2
WBTSAE	AB1811	24	1	2	2	20181201	1021	26.429N	78.666W	639	644	11.838	35.506	2	35.509	2	138.3	2	134.8	6
WBTSAE	AB1811	24	1	3	2	20181201	1025	26.429N	78.666W	542	546	14.167	35.877	2	35.883	2	157.7	2	158.3	6
WBTSAE	AB1811	24	1	4	2	20181201	1028	26.428N	78.666W	441	445	17.012	36.340	2	36.338	2	172.7	2	172.6	2
WBTSAE	AB1811	24	1	5	2	20181201	1032	26.428N	78.666W	342	345	18.668	36.579	2	36.580	2	185.6	2	186.5	2
WBTSAE	AB1811	24	1	6	2	20181201	1035	26.428N	78.666W	268	270	19.228	36.638	2	36.639	2	191.3	2	191.3	2
WBTSAE	AB1811	24	1	7	2	20181201	1037	26.428N	78.665W	209	210	20.648	36.765	2	36.762	2	183.0	2	206.0	4
WBTSAE	AB1811	24	1	8	2	20181201	1040	26.428N	78.665W	149	150	22.999	36.868	2	36.868	2	194.3	2	195.0	2
WBTSAE	AB1811	24	1	9	2	20181201	1042	26.427N	78.665W	100	100	25.904	36.661	2	36.675	4	182.5	2	183.5	2
WBTSAE	AB1811	24	1	10	2	20181201	1044	26.427N	78.665W	40	40	27.061	36.572	2	36.573	6	193.6	2	193.5	2
WBTSAE	AB1811	24	1	11	2	20181201	1047	26.427N	78.665W	2	2	27.041	36.572	2	36.573	2	193.2	2	193.6	2
WBTSAE	AB1811	25	1	1	2	20181201	1208	26.333N	78.711W	693	699	9.473	35.258	2	35.260	2	142.9	2	141.3	2
WBTSAE	AB1811	25	1	2	2	20181201	1212	26.332N	78.710W	584	589	13.587	35.785	2	35.784	2	153.7	2	153.1	2
WBTSAE	AB1811	25	1	3	2	20181201	1215	26.331N	78.710W	489	493	15.554	36.101	2	36.104	2	167.4	2	167.4	6
WBTSAE	AB1811	25	1	4	2	20181201	1219	26.331N	78.711W	387	390	17.621	36.438	2	36.437	6	176.0	2	175.4	2
WBTSAE	AB1811	25	1	5	2	20181201	1222	26.330N	78.711W	288	291	19.183	36.636	2	36.639	2	193.3	2	193.2	2
WBTSAE	AB1811	25	1	6	2	20181201	1226	26.329N	78.710W	199	200	20.897	36.780	2	36.781	2	190.0	2	191.7	2
WBTSAE	AB1811	25	1	7	2	20181201	1229	26.328N	78.710W	117	118	24.698	36.794	2	36.790	2	184.3	2	195.0	4
WBTSAE	AB1811	25	1	8	2	20181201	1232	26.327N	78.709W	40	40	26.905	36.457	2	36.460	2	190.7	2	191.9	2
WBTSAE	AB1811	25	1	9	2	20181201	1234	26.327N	78.708W	3	3	26.911	36.447	2	36.448	2	191.0	2	191.5	2
WBTSAE	AB1811	26	1	1	2	20181201	1334	26.250N	78.766W	516	520	14.396	35.913	2	35.945	4	159.4	2	161.5	2
WBTSAE	AB1811	26	1	2	2	20181201	1337	26.250N	78.766W	397	400	17.288	36.387	2	36.383	2	174.7	2	174.5	2
WBTSAE	AB1811	26	1	3	2	20181201	1340	26.249N	78.766W	300	302	19.012	36.621	2	36.623	2	192.4	2	191.7	2
WBTSAE	AB1811	26	1	4	2	20181201	1342	26.249N	78.765W	210	212	20.656	36.758	2	36.758	6	189.3	2	189.1	6
WBTSAE	AB1811	26	1	5	2	20181201	1345	26.249N	78.765W	126	127	24.566	36.797	2	36.797	2	193.9	2	193.0	2
WBTSAE	AB1811	26	1	6	2	20181201	1347	26.250N	78.764W	61	62	27.140	36.425	2	-999.000	9	-999.0	9	-999.0	9
WBTSAE	AB1811	26	1	7	2	20181201	1349	26.249N	78.764W	6	6	27.114	36.425	2	36.426	2	192.8	2	192.7	2
WBTSAE	AB1811	27	1	1	2	20181201	1456	26.168N	78.798W	451	454	14.953	35.991	2	36.009	4	152.0	2	149.4	6
WBTSAE	AB1811	27	1	2	2	20181201	1459	26.167N	78.798W	349	352	17.766	36.461	2	36.463	2	176.3	2	176.6	2
WBTSAE	AB1811	27	1	3	2	20181201	1501	26.167N	78.797W	240	242	19.868	36.695	2	36.695	2	188.3	2	189.3	2
WBTSAE	AB1811	27	1	4	2	20181201	1504	26.166N	78.797W	137	138	24.763	36.780	2	36.779	2	184.3	2	184.2	4
WBTSAE	AB1811	27	1	5	2	20181201	1506	26.166N	78.797W	101	101	26.369	36.689	2	36.692	2	187.3	2	187.5	2
WBTSAE	AB1811	27	1	6	2	20181201	1508	26.166N	78.796W	50	51	27.091	36.456	2	-999.000	9	-999.0	9	-999.0	9
WBTSAE	AB1811	27	1	7	2	20181201	1510	26.165N	78.796W	4	4	27.075	36.458	2	36.459	2	192.7	2	193.1	2
WBTSAE	AB1811	28	1	1	2	20181201	1631	26.068N	78.850W	295	297	18.725	36.589	2	36.605	4	176.0	2	184.6	4
WBTSAE	AB1811	28	1	2	2	20181201	1634	26.068N	78.850W	200	202	21.180	36.814	2	36.812	2	181.5	2	180.8	2
WBTSAE	AB1811	28	1	3	2	20181201	1636	26.068N	78.850W	140	141	26.383	36.612	2	36.641	4	179.5	2	181.4	4
WBTSAE	AB1811	28	1	4	2	20181201	1638	26.068N	78.849W	89	90	27.029	36.508	2	36.508	2	193.5	2	192.8	2
WBTSAE	AB1811	28	1	5	2	20181201	1640	26.068N	78.849W	50	50	27.030	36.499	2	36.493	2	194.4	2	194.2	6
WBTSAE	AB1811	28	1	6	2	20181201	1643	26.068N	78.849W	7	7	27.037	36.498	2	36.466	4	194.4	2	194.6	2
WBTSAE	AB1811	29	1	1	2	20181201	1942	26.048N	79.230W	304	307	18.998	36.622	2	36.637	4	164.1	2	164.5	2
WBTSAE	AB1811	29	1	2	2	20181201	1946	26.048N	79.230W	200	201	21.641	36.896	2	36.898	2	154.5	2	153.4	2
WBTSAE	AB1811	29	1	3	2	20181201	1948	26.048N	79.229W	150	151	24.039	36.847	2	36.846	6	160.5	2	160.9	6
WBTSAE	AB1811	29	1	4	2	20181201	1951	26.048N	79.228W	91	91	26.843	36.416	2	36.418	2	182.6	2	181.7	2
WBTSAE	AB1811	29	1	5	2	20181201	1953	26.047N	79.228W	51	51	27.535	36.224	2	36.226	2	194.0	2	193.3	2
WBTSAE	AB1811	29	1	6	2	20181201	1956	26.047N	79.227W	4	4	27.535	36.211	2	36.211	2	194.6	2	195.1	2
WBTSAE	AB1811	30	1	1	2	20181201	2105	26.050N	79.309W	468	471	13.489	35.729	2	35.731	2	130.4	2	129.9	2
WBTSAE	AB1811	30	1	2	2	20181201	2109	26.051N	79.309W	368	371	16.579	36.261	2	36.267	6	146.6	2	154.4	4
WBTSAE	AB1811	30	1	3	2	20181201	2111	26.051N	79.309W	318	320	18.305	36.536	2	36.521	4	168.3	2	165.0	6
WBTSAE	AB1811	30	1	4	2	20181201	2113	26.051N	79.309W	253	255	19.452	36.684	2	36.687	2	152.0	2	151.8	2
WBTSAE	AB1811	30	1	5	2	20181201	2115	26.051N	79.309W	189	190	21.616	36.898	2	36.900	2	151.6	2	150.4	2
WBTSAE	AB1811	30	1	6	2	20181201	2118	26.051N	79.308W	141	142	25.506	36.702	2	36.706	2	160.4	2	160.3	4
WBTSAE	AB1811	30	1	7	2	20181201	2120	26.050N	79.308W	80	81	27.598	36.309	2	36.295	4	187.9	2	189.2	2
WBTSAE	AB1811	30	1	8	2	20181201	2122	26.050N	79.308W	40	41	27.666	36.240	2	36.243	2	192.6	2	193.4	2
WBTSAE	AB1811	30	1	9	2	20181201	2124	26.050N	79.308W	3	3	27.655	36.240	2	36.242	2	193.3	2	193.4	2
WBTSAE	AB1811	31	1	1	2	20181201	2238	26.052N	79.396W	575	579	10.915	35.321	2	35.320	2	121.1	2	119.7	2
WBTSAE	AB1811	31	1	2	2	20181201	2241	26.053N	79.395W	457	461	13.142	35.670	2	35.673	2	129.4	2	127.7	2
WBTSAE	AB1811	31	1	3	2	20181201	2244	26.053N	79.394W	358	361	16.511	36.241	2	36.245	2	147.9	2	147.0	2
WBTSAE	AB1811	31	1	4	2	20181201	2247	26.053N	79.394W	260	262	19.195	36.652	2	36.658	2	151.1	2	150.3	6
WBTSAE	AB1811	31	1	5	2	20181201	2249	26.054N	79.393W	209	211	21.107	36.860	2	36.861	2	151.6	2	150.1	2
WBTSAE	AB1811	31	1	6	2	20181201	2251	26.054N	79.393W	170	171	23.544	36.912	2	36.914	2	155.3	2	154.4	2
WBTSAE	AB1811	31	1	7	2	20181201	2253	26.054N	79.392W	121	122	25.820	36.641	2	36.640	2	167.8	2	168.3	2
WBTSAE	AB1811	31	1	8	2	20181201	2256	26.054N	79.392W	61	61	27.714	36.179	2	36.182	2	192.7	2	192.4	2
WBTSAE	AB1811	31	1	9	2	20181201	2258	26.054N	79.391W	3	3	27.678	36.169	2	36.171	2	193.0	2	192.9	2
WBTSAE	AB1811	32	1	1	2	20181202	0017	26.057N	79.477W	662	667	9.426	35.116	2	35.118	2	118.8	2	118.4	6
WBTSAE	AB1811	32	1	2	2	20181202	0020	26.058N	79.476W	546	550	10.579	35.267	2	35.263	6	120.3	2	118.8	2

WBTSAE	AB1811	32	1	3	2	20181202	0023	26.058N	79.475W	476	480	12.029	35.487	2	35.486	2	125.0	2	122.9	2
WBTSAE	AB1811	32	1	4	2	20181202	0026	26.058N	79.475W	386	389	14.265	35.851	2	35.854	2	133.6	2	132.7	2
WBTSAE	AB1811	32	1	5	2	20181202	0030	26.059N	79.474W	311	313	16.841	36.295	2	36.306	4	149.7	2	148.1	2
WBTSAE	AB1811	32	1	6	2	20181202	0033	26.060N	79.473W	243	245	19.089	36.637	2	36.634	2	148.9	2	150.4	2
WBTSAE	AB1811	32	1	7	2	20181202	0036	26.060N	79.473W	181	182	22.255	36.945	2	36.945	2	153.7	2	152.2	2
WBTSAE	AB1811	32	1	8	2	20181202	0038	26.061N	79.472W	139	140	24.884	36.813	2	36.817	2	165.0	2	161.5	2
WBTSAE	AB1811	32	1	9	2	20181202	0041	26.061N	79.471W	70	71	27.717	36.165	2	36.165	2	194.1	2	194.5	2
WBTSAE	AB1811	32	1	10	2	20181202	0043	26.062N	79.471W	35	35	27.706	36.162	2	-999.000	9	194.1	2	194.0	2
WBTSAE	AB1811	32	1	11	2	20181202	0046	26.062N	79.470W	3	3	27.686	36.165	2	36.166	2	193.6	2	193.1	2
WBTSAE	AB1811	33	1	1	2	20181202	0211	26.050N	79.563W	745	751	6.483	34.901	2	34.908	6	135.4	2	135.5	4
WBTSAE	AB1811	33	1	2	2	20181202	0215	26.050N	79.563W	636	641	8.996	35.059	2	35.061	2	119.0	2	118.2	2
WBTSAE	AB1811	33	1	3	2	20181202	0219	26.050N	79.562W	536	540	10.098	35.196	2	35.196	2	120.6	2	118.9	2
WBTSAE	AB1811	33	1	4	2	20181202	0222	26.050N	79.562W	436	439	12.191	35.510	2	35.953	4	125.4	2	124.0	2
WBTSAE	AB1811	33	1	5	2	20181202	0226	26.051N	79.561W	339	341	14.860	35.953	2	35.953	2	137.5	2	135.8	2
WBTSAE	AB1811	33	1	6	2	20181202	0228	26.051N	79.560W	268	270	17.220	36.361	2	36.352	4	137.2	2	150.0	4
WBTSAE	AB1811	33	1	7	2	20181202	0231	26.051N	79.560W	202	203	20.165	36.753	2	36.760	2	142.2	2	157.0	4
WBTSAE	AB1811	33	1	8	2	20181202	0234	26.051N	79.559W	152	153	23.444	36.945	2	36.955	2	156.0	2	155.9	2
WBTSAE	AB1811	33	1	9	2	20181202	0236	26.052N	79.559W	102	103	26.685	36.511	2	36.500	4	175.9	2	176.7	6
WBTSAE	AB1811	33	1	10	2	20181202	0239	26.053N	79.558W	50	50	27.596	36.146	2	36.148	2	193.6	2	193.5	2
WBTSAE	AB1811	33	1	11	2	20181202	0242	26.054N	79.558W	3	3	27.571	36.146	2	36.147	2	195.4	2	193.6	2
WBTSAE	AB1811	34	1	1	2	20181202	0410	26.055N	79.664W	682	688	6.582	34.904	2	34.905	2	138.8	2	136.6	2
WBTSAE	AB1811	34	1	2	2	20181202	0414	26.057N	79.664W	571	575	8.569	35.012	2	35.012	6	120.6	2	118.9	2
WBTSAE	AB1811	34	1	3	2	20181202	0418	26.058N	79.663W	471	475	10.062	35.196	2	35.194	2	120.5	2	119.1	6
WBTSAE	AB1811	34	1	4	2	20181202	0421	26.059N	79.663W	372	375	12.273	35.527	2	35.528	2	119.9	2	118.9	2
WBTSAE	AB1811	34	1	5	2	20181202	0424	26.060N	79.663W	298	300	14.982	35.966	2	35.960	2	128.2	2	126.4	2
WBTSAE	AB1811	34	1	6	2	20181202	0426	26.061N	79.663W	252	254	16.821	36.270	2	36.269	2	137.8	2	135.5	2
WBTSAE	AB1811	34	1	7	2	20181202	0429	26.062N	79.663W	189	190	20.062	36.755	2	36.751	2	153.3	2	151.4	2
WBTSAE	AB1811	34	1	8	2	20181202	0432	26.063N	79.662W	125	125	24.849	36.757	2	36.768	4	162.9	2	161.5	2
WBTSAE	AB1811	34	1	9	2	20181202	0435	26.064N	79.662W	60	61	27.612	36.132	2	36.135	2	193.3	2	193.4	2
WBTSAE	AB1811	34	1	10	2	20181202	0438	26.065N	79.662W	4	4	27.581	36.133	2	36.134	2	193.8	2	193.8	2
WBTSAE	AB1811	35	1	1	2	20181202	0601	26.061N	79.763W	594	599	6.233	34.905	2	34.907	2	144.8	2	142.5	2
WBTSAE	AB1811	35	1	2	2	20181202	0605	26.062N	79.763W	463	466	8.761	35.030	2	35.031	2	120.4	2	118.5	6
WBTSAE	AB1811	35	1	3	2	20181202	0609	26.064N	79.762W	364	366	11.507	35.415	2	35.422	2	118.1	2	117.9	2
WBTSAE	AB1811	35	1	4	2	20181202	0612	26.066N	79.761W	293	295	14.570	35.901	2	35.904	2	127.6	2	125.6	2
WBTSAE	AB1811	35	1	5	2	20181202	0615	26.067N	79.760W	243	245	16.990	36.303	2	36.291	4	141.9	2	140.6	2
WBTSAE	AB1811	35	1	6	2	20181202	0617	26.067N	79.760W	215	216	18.169	36.488	2	36.480	6	144.9	2	143.5	2
WBTSAE	AB1811	35	1	7	2	20181202	0619	26.068N	79.759W	174	175	20.714	36.794	2	36.792	2	145.2	2	145.1	2
WBTSAE	AB1811	35	1	8	2	20181202	0622	26.069N	79.759W	130	131	24.167	36.781	2	36.787	2	161.8	2	159.4	2
WBTSAE	AB1811	35	1	9	2	20181202	0625	26.070N	79.758W	66	67	27.611	36.229	2	36.230	2	193.8	2	193.6	2
WBTSAE	AB1811	35	1	10	2	20181202	0629	26.072N	79.757W	3	3	27.600	36.227	2	36.228	2	193.3	2	193.4	2
WBTSAE	AB1811	36	1	1	2	20181202	0741	26.058N	79.845W	322	325	11.460	35.433	2	35.450	4	122.6	2	120.6	2
WBTSAE	AB1811	36	1	2	2	20181202	0745	26.059N	79.843W	189	191	18.177	36.493	2	36.502	6	143.9	2	143.3	2
WBTSAE	AB1811	36	1	3	2	20181202	0749	26.061N	79.842W	101	102	25.647	36.678	2	36.671	2	169.1	2	166.8	4
WBTSAE	AB1811	36	1	4	2	20181202	0752	26.062N	79.841W	51	51	27.529	36.161	2	36.163	2	194.0	2	193.5	2
WBTSAE	AB1811	36	1	5	2	20181202	0754	26.063N	79.841W	3	3	27.515	36.162	2	36.163	2	193.0	2	193.6	2
WBTSAE	AB1811	37	1	1	2	20181202	0900	26.058N	79.929W	264	266	10.147	35.243	2	35.241	2	122.7	2	120.2	6
WBTSAE	AB1811	37	1	2	2	20181202	0904	26.060N	79.928W	155	156	18.545	36.476	2	36.482	2	134.7	2	133.3	2
WBTSAE	AB1811	37	1	3	2	20181202	0907	26.061N	79.927W	70	71	26.367	36.184	2	36.199	4	196.0	2	196.7	2
WBTSAE	AB1811	37	1	4	2	20181202	0909	26.062N	79.927W	31	31	27.325	36.111	2	36.114	6	194.2	2	194.3	2
WBTSAE	AB1811	37	1	5	2	20181202	0910	26.063N	79.926W	4	4	27.315	36.110	2	36.112	2	194.5	2	194.4	2
WBTSAE	AB1811	38	1	1	2	20181202	1018	26.056N	79.999W	241	243	8.632	35.075	2	35.074	6	126.5	2	123.9	2
WBTSAE	AB1811	38	1	2	2	20181202	1022	26.057N	79.999W	134	135	17.025	36.215	2	36.203	4	134.2	2	132.2	6
WBTSAE	AB1811	38	1	3	2	20181202	1024	26.058N	79.999W	91	92	26.015	36.239	2	36.246	2	190.5	2	188.9	2
WBTSAE	AB1811	38	1	4	2	20181202	1026	26.059N	79.999W	45	45	26.758	36.168	2	36.176	2	196.4	2	196.1	2
WBTSAE	AB1811	38	1	5	2	20181202	1029	26.060N	79.999W	3	3	27.180	36.121	2	36.123	2	194.8	2	195.0	2
WBTSAE	AB1811	39	1	1	2	20181202	1120	26.046N	80.066W	125	126	14.887	35.838	2	35.876	4	130.0	2	131.1	2
WBTSAE	AB1811	39	1	2	2	20181202	1123	26.046N	80.066W	75	75	25.822	36.148	2	36.156	6	191.2	2	189.7	2
WBTSAE	AB1811	39	1	3	2	20181202	1125	26.046N	80.067W	35	35	26.141	36.159	2	36.158	2	195.5	2	194.0	6
WBTSAE	AB1811	39	1	4	2	20181202	1127	26.046N	80.067W	4	4	26.196	36.172	2	36.174	2	195.5	2	194.9	2
WBTSAE	AB1811	40	1	1	2	20181202	1824	27.000N	79.201W	4	4	27.525	36.236	2	-999.000	9	-999.0	9	-999.0	9
WBTSAE	AB1811	40	1	2	2	20181202	1836	27.000N	79.200W	468	472	15.997	36.175	2	36.176	6	169.6	2	168.6	6
WBTSAE	AB1811	40	1	3	2	20181202	1841	27.000N	79.200W	305	308	18.814	36.608	2	36.605	2	191.9	2	190.6	2
WBTSAE	AB1811	40	1	4	2	20181202	1845	26.999N	79.199W	155	156	23.203	36.883	2	36.874	4	172.9	2	183.9	4
WBTSAE	AB1811	40	1	5	2	20181202	1849	26.999N	79.199W	61	61	27.069	36.434	2	36.440	2	192.0	2	191.8	2
WBTSAE	AB1811	40	1	6	2	20181202	1852	26.998N	79.199W	4	4	27.530	36.236	2	36.236	2	194.1	2	192.6	2
WBTSAE	AB1811	41	1	1	2	20181202	2005	27.002N	79.281W	601	606	12.170	35.540	2	35.539	6	132.9	2	131.7	2

WBTSAE	AB1811	41	1	2	2	20181202	2010	27.003N	79.281W	448	451	14.671	35.952	2	35.956	2	157.6	2	157.6	2
WBTSAE	AB1811	41	1	3	2	20181202	2014	27.004N	79.280W	287	289	18.998	36.623	2	36.624	2	193.0	2	192.3	6
WBTSAE	AB1811	41	1	4	2	20181202	2019	27.004N	79.279W	122	122	25.585	36.680	2	36.727	4	167.5	2	169.7	2
WBTSAE	AB1811	41	1	5	2	20181202	2022	27.005N	79.279W	51	51	27.298	36.380	2	36.382	2	191.4	2	190.4	2
WBTSAE	AB1811	41	1	6	2	20181202	2024	27.005N	79.279W	3	3	27.632	36.186	2	36.187	2	194.7	2	194.1	2
WBTSAE	AB1811	42	1	1	2	20181202	2140	27.004N	79.378W	644	650	9.823	35.189	2	35.186	2	123.2	2	121.3	2
WBTSAE	AB1811	42	1	2	2	20181202	2142	27.005N	79.378W	537	541	11.568	35.416	2	35.430	4	123.9	2	123.1	2
WBTSAE	AB1811	42	1	3	2	20181202	2148	27.005N	79.377W	358	361	16.856	36.296	2	36.298	2	151.2	2	149.5	2
WBTSAE	AB1811	42	1	4	2	20181202	2153	27.006N	79.376W	175	177	22.144	36.917	2	36.909	4	149.9	2	150.5	2
WBTSAE	AB1811	42	1	5	2	20181202	2157	27.006N	79.375W	73	73	27.433	36.371	2	36.324	4	187.8	2	186.6	2
WBTSAE	AB1811	42	1	6	2	20181202	2200	27.006N	79.374W	3	3	27.669	36.163	2	36.163	2	194.7	2	193.6	6
WBTSAE	AB1811	43	1	1	2	20181202	2331	27.006N	79.498W	743	749	6.574	34.902	2	34.903	6	139.3	2	136.6	2
WBTSAE	AB1811	43	1	2	2	20181202	2335	27.007N	79.498W	642	648	7.927	34.954	2	34.953	2	123.6	2	121.2	6
WBTSAE	AB1811	43	1	3	2	20181202	2340	27.008N	79.498W	465	469	11.727	35.437	2	35.429	4	124.6	2	122.2	2
WBTSAE	AB1811	43	1	4	2	20181202	2345	27.009N	79.497W	310	312	16.892	36.306	2	36.311	2	150.5	2	148.6	2
WBTSAE	AB1811	43	1	5	2	20181202	2349	27.011N	79.497W	180	182	21.058	36.853	2	36.853	2	152.4	2	151.8	2
WBTSAE	AB1811	43	1	6	2	20181202	2352	27.013N	79.497W	80	81	27.465	36.262	2	36.338	4	186.7	2	184.3	4
WBTSAE	AB1811	43	1	7	2	20181202	2355	27.014N	79.496W	2	2	27.549	36.153	2	36.154	2	194.8	2	193.6	2
WBTSAE	AB1811	44	1	1	2	20181203	0136	27.003N	79.616W	624	629	6.579	34.902	2	34.903	6	139.5	2	136.7	2
WBTSAE	AB1811	44	1	2	2	20181203	0141	27.005N	79.616W	467	471	9.955	35.182	2	35.182	2	120.9	2	117.8	2
WBTSAE	AB1811	44	1	3	2	20181203	0145	27.008N	79.615W	318	320	14.577	35.901	2	35.896	2	128.1	2	126.6	6
WBTSAE	AB1811	44	1	4	2	20181203	0150	27.010N	79.615W	179	180	20.896	36.836	2	36.837	2	151.7	2	149.9	2
WBTSAE	AB1811	44	1	5	2	20181203	0153	27.012N	79.615W	70	71	27.539	36.152	2	36.197	4	193.6	2	191.0	2
WBTSAE	AB1811	44	1	6	2	20181203	0156	27.014N	79.615W	3	3	27.558	36.137	2	36.139	2	195.4	2	193.6	2
WBTSAE	AB1811	45	1	1	2	20181203	0308	27.002N	79.683W	524	528	6.604	34.908	2	34.908	6	138.9	2	135.5	6
WBTSAE	AB1811	45	1	2	2	20181203	0312	27.003N	79.683W	397	400	10.878	35.343	2	35.340	2	122.4	2	120.0	2
WBTSAE	AB1811	45	1	3	2	20181203	0316	27.005N	79.682W	249	250	16.719	36.257	2	36.246	4	135.7	2	137.0	4
WBTSAE	AB1811	45	1	4	2	20181203	0320	27.007N	79.682W	120	121	24.409	36.782	2	36.781	2	159.8	2	159.3	2
WBTSAE	AB1811	45	1	5	2	20181203	0323	27.008N	79.682W	60	61	27.567	36.201	2	36.212	4	194.9	2	193.6	2
WBTSAE	AB1811	45	1	6	2	20181203	0325	27.010N	79.682W	3	3	27.579	36.202	2	36.203	2	194.6	2	193.8	2
WBTSAE	AB1811	46	1	1	2	20181203	0447	27.002N	79.784W	373	376	7.558	34.936	2	34.938	2	126.6	2	123.7	6
WBTSAE	AB1811	46	1	2	2	20181203	0451	27.004N	79.783W	271	273	11.299	35.405	2	35.439	4	124.2	2	122.4	2
WBTSAE	AB1811	46	1	3	2	20181203	0456	27.006N	79.783W	121	122	23.932	36.857	2	36.859	2	155.5	2	155.0	2
WBTSAE	AB1811	46	1	4	2	20181203	0500	27.008N	79.782W	42	43	27.514	36.175	2	36.170	2	194.5	2	194.3	2
WBTSAE	AB1811	46	1	5	2	20181203	0502	27.010N	79.782W	3	3	27.412	36.129	2	36.130	2	194.1	2	194.5	2
WBTSAE	AB1811	47	1	1	2	20181203	0606	27.009N	79.864W	259	261	9.853	35.216	2	35.237	4	122.1	2	120.4	2
WBTSAE	AB1811	47	1	2	2	20181203	0610	27.011N	79.863W	165	166	14.588	35.898	2	35.903	2	130.6	2	128.7	6
WBTSAE	AB1811	47	1	3	2	20181203	0613	27.013N	79.862W	74	74	26.313	36.553	2	36.557	2	176.0	2	174.6	2
WBTSAE	AB1811	47	1	4	2	20181203	0617	27.015N	79.861W	3	3	27.093	36.162	2	36.165	2	195.7	2	195.3	2
WBTSAE	AB1811	48	1	1	2	20181203	0713	27.005N	79.933W	138	139	13.471	35.719	2	35.768	4	126.0	2	125.5	2
WBTSAE	AB1811	48	1	2	2	20181203	0716	27.007N	79.933W	59	60	25.758	36.229	2	36.234	6	193.9	2	191.5	6
WBTSAE	AB1811	48	1	3	2	20181203	0719	27.009N	79.933W	3	3	26.980	36.169	2	36.170	2	196.4	2	195.1	2