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HYDROGRAPHIC MEASUREMENTS COLLECTED ABOARD THE UNOLS SHIP R/V OCEANUS, LEG 1: 23 MARCH - 4 APRIL 2010 & LEG2: 6 APRIL - 17 APRIL 2010 : WESTERN BOUNDARY TIME SERIES CRUISE OC459-1 & OC459-2 (AB1003)

James A. Hooper V
Molly O. Baringer

Atlantic Oceanographic and Meteorological Laboratory
Miami, Florida
July 2015

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James A. Hooper V
University of Miami / Cooperative Institute for Marine and Atmospheric Studies
NOAA/ Atlantic Oceanographic and Meteorological Laboratory
Miami, Florida

Molly O. Baringer
NOAA/ Atlantic Oceanographic and Meteorological Laboratory
Miami, Florida

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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 summarizes the March 23 - April 17, 2010 cruise on the UNOLS ship R/V Oceanus involving full-water-column CTD and lowered ADCP profiles, along with shipboard ADCP profiles, conducted within the Florida Straits and east of Abaco Island, Bahamas. At each station, a package consisting of a Seabird Electronics Model 9/11+ CTD O2 system, two RDI 300 kHz Workhorse Lowered Acoustic Doppler Current Profilers, and 23 10-liter Niskin bottles, was to be lowered to the bottom. This report includes a description of the calibrations procedures and profiles of pressure, salinity (conductivity), temperature, and dissolved oxygen concentration. Water samples were also collected at various depths and analyzed for salinity and oxygen concentration to aid with CTD calibration. A total of 63 casts were completed, 61 CTD-O2/LADCP stations were occupied and 2 where no CTD data was collected that tested the acoustic releases. PIES/CPIES data were downloaded from 4 sites. There was a successful recovery and deployment of a PIES at the B site, a failed recovery at site C and failed telemetry and site D. Mooring operations include recovery of 13 moorings and deployment of 14 moorings with a mixture of current meters, Acoustic Doppler Current Profilers (ADCPs), and temperature/salinity recorders, and bottom landers instrumented with bottom pressure recorders. As part of NOAA contribution to the Global Surface Drifter Program, 12 surface drifters were deployed.

1 Introduction

The Abaco time series began in August 1984 when NOAA extended its Straits of Florida program to include measurements of western boundary current transports and water mass properties east of Abaco, the Bahamas. Since 1986, 37 hydrographic sections have been completed east of Abaco, most including direct velocity observations by Pegasus and/or Lowered Acoustic Doppler Current Profiler (LADCP). Transient tracer (CFC) measurements have been made on 8 of these sections. Current meter arrays were also maintained from April 1986 to April 1997. A new international program funded by the United Kingdom's Rapid Climate Change Program and the United States National Science Foundation began in March 2004 and is currently scheduled to end in 2021. Included in this program is a new deployment of current meter moorings along the Abaco section (the UK segment of the program continues with moorings across to the east edge of the Atlantic basin). Independently, the National Oceanic and Atmospheric Administration began a monitoring program in September 2004 utilizing inverted echo sounder moorings (some including bottom pressure measurements and near-bottom current meters) along the Abaco section. All of these programs are collaborating with scientific analysis and logistics including ship time.

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

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

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

2. Serving as a western boundary endpoint of a subtropical Meridional Overturning Circulation (MOC) heat flux monitoring system designed to measure the interior dynamic height difference across the Atlantic basin and the associated baroclinic heat transport.

3. Monitoring the intensity of the Antilles current as an index (together with the Florida Current) of inter-annual variability in the strength of the subtropical gyre. Variations in the strength of the subtropical gyre in relation to the North Atlantic Oscillation

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

A hydrographic survey consisting of a repeat LADCP/CTD/rosette section in the western North Atlantic was carried out in March-April 2010 (Figure 1 and Table 2). The R/V Oceanus departed Woods Hole, MA on 23 March 2010 and ended in Freeport, Grand Bahama Island for Leg 1 and departed Freeport, Grand Bahama Island 6 April 2010 and ended in Port Everglades, FL 17 April 2010 for Leg 2. There were 61 LADCP/CTD/Rosette stations completed and 2 profiles where no CTD data was collected to test the acoustic releases. Water samples (up to 23 for each station), LADCP, CTD data were collected on each cast to within 20 m of the bottom. Salinity and dissolved oxygen samples were analyzed from the majority of bottles sampled on the rosette. Mooring operations included recovery six moorings and two bottom landers and redeployment of five moorings and three bottom landers with a mixture of current meters, bottom pressure recorders, and CTD loggers. As part of NOAA's contribution to the Global Surface Drifter Program, twelve surface velocity drifters equipped with sea-surface temperature sensors were deployed.

Table 1: Cruise participants of R/V Oceanus.

Name	Responsibility	Affiliation
Leg 1:		
Chris Meinen	NOAA/AOML	
David Childs	NOCS	
Julie Collins	NOCS	
Christian Crowe	NOCS	
Stuart Cunningham	NOCS	
Colin Hutton	NOCS	
Rob McLachlan	NOCS	
Pedro Pena	NOAA/AOML	
Paul Provost	NOCS	
Erik van Sebille	UM/RSMAS	
Zoli Szuts	MPI	
Stephen Whittle	NOCS	
Leg 2:		
Christopher Meinen	NOAA/AOML	
Rigoberto Garcia	UM/CIMAS	
Judith Helgers	UM/RSMAS	
Ulises Rivero	NOAA/AOML	
Erik van Sebille	UM/RSMAS	
Andrew Stefanick	NOAA/AOML	
Erik Valdes	UM/CIMAS	

Table 2: Abaco Cruise – CTD Cast Summary

Station	Date	Time (GMT)	Latitude	Longitude	Depth
0	03/25/10	18:26:02	35.454N	70.727W	206
1	03/27/10	20:03:58	27.395N	70.558W	5527
2	03/28/10	04:10:06	27.427N	70.593W	5479
3	03/29/10	22:23:56	26.359N	75.703W	3921
4	03/30/10	22:33:34	26.520N	76.669W	4039
5	03/31/10	03:31:54	26.578N	76.699W	3217
6	04/02/10	03:31:13	26.526N	76.645W	3466
9	04/03/10	03:23:59	26.514N	76.709W	3115
10	04/07/10	03:14:59	26.530N	76.888W	304
11	04/07/10	04:41:11	26.516N	76.835W	1058
12	04/07/10	09:47:46	26.506N	76.730W	3885
13	04/07/10	14:31:17	26.492N	76.654W	4659
14	04/07/10	19:13:59	26.499N	76.563W	4897
15	04/08/10	00:05:04	26.499N	76.475W	4895
16	04/08/10	04:46:40	26.498N	76.338W	4917
17	04/08/10	09:12:32	26.494N	76.211W	4881
18	04/08/10	13:42:49	26.487N	76.083W	4851
19	04/08/10	22:47:35	26.497N	75.905W	4800
20	04/09/10	03:17:11	26.529N	75.697W	4728
21	04/09/10	10:19:17	26.513N	75.503W	4747
22	04/09/10	14:41:49	26.508N	75.294W	4692
23	04/09/10	19:04:06	26.501N	75.090W	4655
24	04/09/10	23:50:31	26.497N	74.812W	4592
25	04/10/10	04:47:42	26.497N	74.523W	4537
26	04/10/10	09:31:00	26.495N	74.237W	4593
27	04/10/10	14:37:48	26.513N	73.860W	4784
28	04/10/10	19:48:06	26.509N	73.507W	4994
29	04/11/10	01:16:14	26.490N	73.144W	5123
30	04/11/10	07:03:31	26.505N	72.774W	5202
31	04/11/10	12:49:11	26.515N	72.405W	5230
32	04/11/10	20:57:45	26.499N	72.002W	5367
33	04/12/10	03:25:42	26.495N	71.510W	5498
34	04/12/10	09:52:39	26.499N	71.002W	5568
35	04/12/10	16:14:35	26.509N	70.496W	5579
36	04/12/10	22:44:01	26.499N	69.995W	5573
37	04/13/10	05:15:58	26.514N	69.491W	5454
38	04/15/10	04:37:03	26.068N	78.850W	285
39	04/15/10	06:02:20	26.167N	78.800W	436
40	04/15/10	07:20:20	26.253N	78.768W	507
41	04/15/10	08:41:44	26.335N	78.721W	670
42	04/15/10	10:10:48	26.435N	78.671W	744
43	04/15/10	16:20:05	27.004N	79.201W	460
44	04/15/10	17:30:28	27.010N	79.281W	583
45	04/15/10	18:53:15	27.008N	79.386W	642
46	04/15/10	20:34:12	27.018N	79.501W	726
47	04/15/10	22:08:42	27.010N	79.620W	623
48	04/15/10	23:22:30	27.013N	79.686W	504
49	04/16/10	00:31:13	27.009N	79.786W	360
50	04/16/10	01:38:39	27.008N	79.870W	239
51	04/16/10	02:34:39	27.006N	79.935W	123
52	04/16/10	09:29:29	26.051N	80.067W	104
53	04/16/10	10:28:12	26.061N	80.002W	219

54	04/16/10	11:26:11	26.062N	79.935W	262
55	04/16/10	12:33:06	26.061N	79.852W	289
56	04/16/10	13:55:45	26.062N	79.767W	579
57	04/16/10	15:45:53	26.064N	79.667W	672
58	04/16/10	17:28:48	26.062N	79.567W	738
59	04/16/10	19:19:10	26.059N	79.479W	653
60	04/16/10	20:35:06	26.057N	79.399W	574
61	04/16/10	21:43:25	26.056N	79.310W	467
62	04/16/10	22:42:09	26.054N	79.231W	306

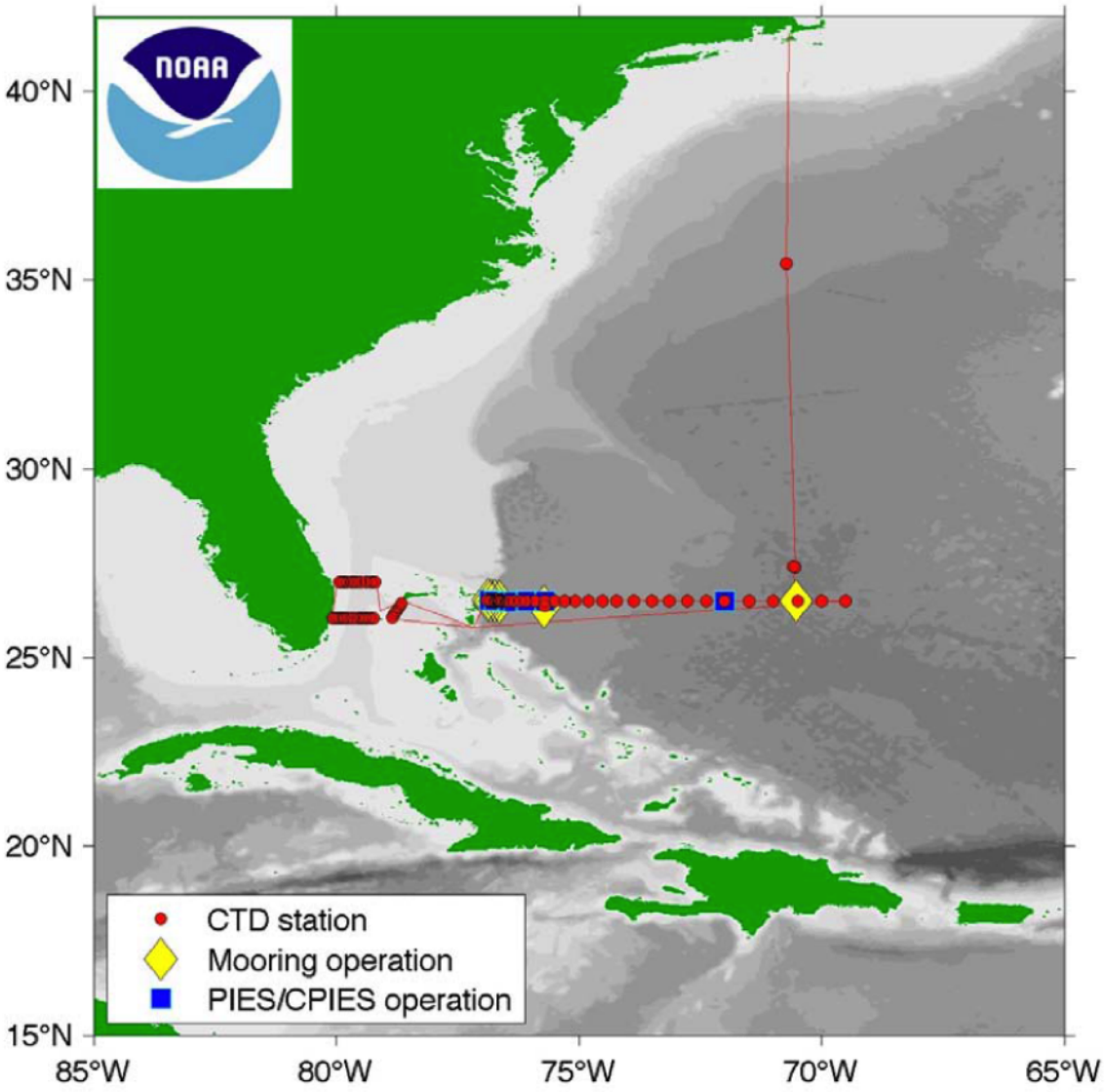

Figure 1: Abaco CTD station locations. Land masses are shaded gray with the Bahamas to the left.

2 Cruise Narrative

The following section is a personal communication of Chris Meinen.

Leg 1 of the cruise departed from Woods Hole, MA on March 23 and ended in Freeport, Grand Bahama Island on April 4; Leg 2 of the cruise began on April 6 in Freeport and ended April 17 in Port Everglades, Florida. On March 24 in the morning the sea state had become fairly cruel with 3-5 meter waves routinely assaulting the ship from the beam. An I-bolt (pad-tie) on the fantail had come loose overnight, allowing several of the mooring anchors to begin to move and strain against their remaining fastenings. Captain Diego Mello recommended suspending the transit until the weather improved with the concurrence of the chief scientist, and as such the ship hove-to for approximately 11 hours while heading slowly westward in to the 3-5 meter seas. Once the weather had abated somewhat, the Captain recommenced the transit southward towards the working area. En route to the first mooring location, three CTD calibration dip casts were completed for testing of the microcats and acoustic releases to be used on the first two moorings to be deployed. Mooring operations began at first light on March 28 at the WB-6 site. Mooring operations continued through April 3; details of the US and UK mooring recoveries and deployments are listed in Tables 4-7. During this week six additional CTD casts were completed for testing of microcats and/or acoustic releases. Also during this leg the operations listed in Table 3 were completed at the NOAA PIES/CPIES sites. On April 3 the ship departed from the work area and headed to Freeport, Grand Bahama Island, arriving on April 4 for Customs and Immigration clearance and for exchange of science personnel.

On April 6 the Oceanus departed from Freeport to begin Leg 2 of the cruise. The ship transited to the east of Abaco Island and started the 'Abaco' line of CTD casts heading eastward. A list of all CTD stations completed during Legs 1 and 2 can be found in Table 1. Upon completion of the Abaco line early on April 13, the ship transited back into Northwest Providence Channel where five CTD stations were collected on April 15. After completion of this line the ship transited into the Straits of Florida and completed two sections, first at 27°N and then at 26°N. After the final CTD was completed early on April 17 the ship headed to Port Everglades, FL where Leg 2 of the cruise ended.

3 Inverted Echo-Sounder Operations

NOAA maintains a line of pressure inverted echo sounders (PIES) along 26°30' N as part of its Western Boundary Time Series program. Some of the instruments are configured with an additional acoustic current meter, referred to as CPIES. The operations involving PIES/CPIES during the cruise are summarized in Table 3.

Several operations were planned at the NOAA PIES/CPIES sites during the March-April 2010 cruise onboard the R/V Oceanus. It was originally planned that these operations would occur during Leg 1, however several activities needed to be moved to Leg 2 due to weather/time constraints during Leg 1. The details of operations completed at each site are presented below. One important note pertinent to all sites; the Oceanus engines generated noise throughout the 10-15kHz range of communication frequencies used by the PIES, and this noise was particularly bad at 10kHz. Only by fully-declutching the engines could communication be done clearly.

3.1 Site A: CPIES 133

1. Data was collected via telemetry from the CPIES SN#133 during Leg 2 of the cruise. This instrument had been deployed at the site during the November-December 2009 cruise onboard the RRS Discovery.

2. Arrived on site April 7, 2010 at 05:21 GMT.

3. Data was downloaded with the "Obi-wan-Kenobi" Benthos DS- 7000 deck unit. We sent the telemetry command about 6 minutes before the 06:00 GMT sampling hour, however no data was received. We sent several additional TELEM commands with no clear response. After the sampling period the TELEM command was sent again (06:18 GMT).

4. First data was received at 06:20 GMT.

5. Final data was received at 20:05 GMT, reaching the start of the record.

6. Preliminary analysis of the data recovered via telemetry indicates that the instrument may have moved vertically by approximately one meter shallower at some point roughly 2-4 weeks after deployment.

7. Preliminary analysis also indicates that the current meter on the CPIES died roughly 40 days into the deployment. Recovery and repair should be planned for the October 2010 cruise.

3.2 Site A2: CPIES 248

1. Deployment at this new site has been attempted twice before with no success. The first instrument deployed at this site was an IES and it returned no useful data when

recovered after a one year deployment in 2006. A subsequent deployment in 2006 for two years ended in failure with the instrument lost, likely due to an anchor failure.

2. A CPIES unit, SN#248, was deployed at the site on April 1, 2010. The instrument was launched at 00:30 GMT and reached the bottom at around 01:35 GMT. Ranges of 3882, 3882, and 3884 received via ranging of the instrument after deployment confirmed that the instrument was on the bottom.

3. A first travel time burst was heard at 02:00 GMT.

4. Communication was done with the "Obi-Wan-Kenobi" Benthos DS- 7000 unit.

3.3 Site B: PIES 239

1. A new model 6.2 PIES (SN#239) was deployed at this site in November-December 2009 after the loss of the two proceeding instruments (the new PIES was deployed in a CPIES frame). Immediately after deployment the instrument was very difficult to communicate with for both ranging and sampling. It was decided at that time to replace the instrument during the March-April 2010 cruise.

2. The new instrument chosen for deployment at this site was an older Seadata PIES (SN#62) that was mounted with an additional acoustic release (EG&G SN#8202) in what was originally termed the 'TRIES' configuration of three spheres in a triangle. The triangle of spheres was mounted atop a CPIES frame which was mounted atop a sheet of thick plastic sheeting to provide a larger 'footprint' and reduce the chances of the instrument sinking into soft sediments if such are present.

3. GMT and was deployed at 08:12 GMT.

4. Ranging on the EG&G release (using our EG&G deck box) confirmed the instrument was sinking well, albeit somewhat slower than originally intended.

5. A subsequent visit on 4/1/2010 confirmed via five consistent ranges that the instrument was on the bottom at a depth of approximately 4848 m.

6. After confirming that the new instrument was safely on the bottom, operations shifted towards recovery of the PIES deployed at this site in November-December 2009 (SN#239).

7. Release command was sent at 5:09:47 GMT. While no reply had been received to Clear commands, we immediately received the proper 4-second ping response to the release command. The instrument was estimated to have left the bottom at 5:20 GMT (can't remember how we determined that - may be suspect). The instrument reached the surface at 06:53 GMT (determined by visual of the strobe light - no radio beacon was heard until the ship had approached quite close). The instrument was brought onboard at 07:15 GMT and was turned off at 07:18:45 GMT.

8. Initial evaluation of the data records within the recovered PIES found that the pressure record appears good, however the travel time record is useless. There is an error message in the log file about the 'charger circuit.' The problem with this instrument will need to be pursued with the manufacturer, URI, upon return to the lab.

3.4 Site C: PIES 155

1. The PIES instrument at this site, SN#155, had been deployed in September-October 2008. The instrument was visited and the data were successfully downloaded during April-May 2009. When it was visited in November-December 2009, problems arose because while the instrument was observed to be clearly sampling, it did not respond to any command from different deck units or transducers. It was determined that we would attempt to recover the instrument in March-April 2010.

2. Arrived on site April 8, 2010 at approximately 15:45 GMT.

3. Instrument was heard clearly sampling at 15:58:54 GMT.

4. Release command was sent using the "Obi-Wan-Kenob" Benthos DS-7000 unit at 16:13:10 GMT. There was no response to the command. Multiple release commands were sent through 16:27 GMT using this deck unit on gains ranging from 2 to 8 with no response.

5. Conversation several months prior to the present cruise with Randy Watts, the manufacturer at URI, suggested that the instrument might have had its communication frequencies shift slightly. Randy described a technique that he had used with an EG&G deck box to shift the frequencies in a somewhat hit-or-miss pattern and with which he had once been successful.

6. The EG&G deck box and transducer were utilized to test this possible solution. Uli attempted 58 different combinations of frequencies (in addition to several additional attempts using the "Obi-Wan-Kenob" deck unit and transducer) over approximately three and a half hours. Transmissions were made from 0.5-1 mile in each cardinal direction from the site in addition to from directly atop it. No two-ping responses were received at any time, while the instrument continued to sample each hour.

7. Finally, shortly after 20:00 GMT it was determined that we would have to leave the instrument and move on. An additional attempt to communicate with and/or release the instrument will be made in October 2010 using what is known to be a very quiet (acoustically) vessel, the NOAA Ship Ronald H. Brown. If that fails, may need to wait until the instrument auto-releases (if that works) in mid 2013.

3.5 Site D: PIES 134

1. The PIES at this site (SN#134) was deployed in November- December 2009. Burst telemetry data was collected at the time of deployment.

2. Arrived on site for the first visit on March 30, 2010 at 03:25 GMT.

3. First clear command was sent at 03:25 GMT. No clear 2-ping response was received.

4. First telemetry command was sent at 03:27 GMT. No clear 2-ping response was received.

5. For approximately 1 hour several attempts to initiate telemetry were pursued. The instrument was heard to sample at 04:00 GMT. Eventually we discussed with the Captain fully declutching the engines, and once this declutching was completed a few minutes later the acoustic environment (as evaluated using headphones connected to the "Obi-Wan-Kenob" Benthos DS-7000 deck unit) improved dramatically.

6. At this point there was no longer enough time left in the schedule to attempt to start telemetry again, so this operation was put off until Leg 2.

7. We returned to this site on April 9, 2010, arriving at 05:36 GMT. The ship was immediately declutched, and it remained so throughout except when we were repositioning the ship. The first clear command was sent at 05:38 GMT - no 2-ping response was heard. The first telem command was sent at 05:40 GMT - again, no 2-ping response was heard. Listening using a gain of 8 delivered a great deal of noise into the telemetry file, but no useful data.

8. The instrument sampled again at 06:00 GMT, confirming that it had not accepted the telemetry command. Repositioned the ship and sent telem again at 06:38 GMT. Once again, there was no response.

9. Tried using the 'R2-D2' Benthos DS-7000 deck unit, and allowed the ship to drift across the site while continuing to attempt to communicate over another hour and a half. The instrument sampled again at 07:00 GMT.

10. Eventually gave up and left at 07:35 GMT. Will attempt communication again in October 2010 from the NOAA Ship Ronald H. Brown. If that fails, may need to wait until the instrument auto-releases (if that works) in mid 2014.

3.6 Site E: PIES 122

1. The PIES at this site (SN#122) was deployed in September-October 2008. Data was successfully downloaded via telemetry from the instrument in April-May 2009 and November-December 2009.

2. Arrived at the site for the first time on March 29, 2010 at 00:25 GMT.

3. Telemetry commands were sent several times between 00:28 and 00:53 GMT with no clear response received using the "Obi-Wan-Kenob" Benthos DS-7000 deck unit. (Note this visit was before we learned the need for declutching the engines fully.)

4. Due to a tight schedule for the mooring work, further attempts at this site were postponed at 01:28 GMT until Leg 2.

5. Arrived again on site April 11, 2010 at 05:18 GMT.

6. Ship immediately was declutched.

7. Clear command was sent at 05:22 GMT. A 2-ping response was received.

8. Telemetry command was sent at 05:24 GMT. First data was received at 05:30 GMT (at least the first MSB record had been missed).

9. The last data needed was received at 06:49 GMT. Clear commands were sent to try and end telemetry operation, but receive window must have been missed as telemetry continued. Decided to let the telemetry just continue until the end rather than spend additional ship time waiting for another attempt to halt it.

10. Noticed that turning off the bow-thrusters further improved the noise characteristics of the ship. Something to remember in the future.

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

Table 3: Inverted echo-sounder locations and operation.

IES Site	Type	Latitude	Longitude	Operation
A	CPIES	026°31.00′ N	076°50.0′ W	Telemetry
A2	CPIES	026°30.01′ N	076°44.7′ W	Telemetry
B	PIES	026°29.5′ N	076°28.2′ W	Recovery Deployment
C	PIES	026°30.1′ N	076°05.3′ W	Failed Recovery
D	PIES	026°30.2′ N	075°42.3′ W	Failed Telemetry
E	PIES	026°30.0′ N	071°00.03′ W	Telemetry

4 Mooring Operations

Thirteen subsurface moorings were successfully recovered from the locations listed in Tables 4 and 5 and shown in Figure **??**. These moorings contained a mixture of current meters, Acoustic Doppler Current Profilers (ADCPs), and temperature/salinity recorders. Sites with an "L" in their name represent bottom lander moorings which contained only precision bottom pressure sensors.

A total of 14 moorings (9 taut-wire moorings and 5 bottom landers) were deployed at the locations listed in Tables 6 and 7 and shown in Figure **??**. Acoustic surveying of the on-bottom position of all moorings (except for some of the bottom landers) was successfully completed after each mooring deployment.

Table 4: Summary of U.S. mooring recovery operations.

Mooring Site	Mooring Number	Latitude (N)	Longitude (W)	Depth	Date of Recovery
WB0	M390	26° 30.41'	76° 50.45'	1004	04/29/2011
WB3	M391	26° 29.37'	76° 30.02'	4840	04/25/2011
WB5	M392	26° 30.16'	71° 58.70'	5294	04/21/2011
WBL3	M394	26° 29.42'	76° 29.64'	4843	04/25/2011
WBL5	M395	26° 30.05'	71° 59.20'	5240	04/21/2011

Table 5: Summary of U.K. mooring recovery operations.

Mooring Site	Mooring Number	Latitude (N)	Longitude (W)	Depth	Date of Recovery
WBADCP	N/A	26° 31.50'	76° 52.08'	609	04/30/2011
WB1	N/A	26° 29.97'	76° 49.12'	1394	04/29/2011
WB2	N/A	26° 30.87'	76° 44.79'	3796	04/27/2011
WBH2	N/A	26° 28.86	76° 34.74'	4824	04/26/2011
WBL4	N/A	26° 21.18'	75° 43.32'	4713	04/23/2011
WB6	N/A	26° 29.65'	70° 31.40'	5491	04/20/2011
WB2L5	N/A	26° 30.38'	76° 44.63'	3882	04/28/2011
WB4L5	N/A	26° 21.26'	75° 42.95'	4713	04/24/2011

* mooring locations on bottom not surveyed after deployment

Table 6: Summary of U.S. mooring deployment operations.

Mooring Site	Mooring Number	Latitude (N)	Longitude (W)	Depth	Date of Deployment
WB0	M402	26° 30.39'	76° 50.47'	1005	04/30/2011
WB3	M403	26° 29.40'	76° 29.87'	4840	04/26/2011
WB5	M405	26° 29.48'	71° 59.07'	5298	04/22/2011
WBL3	M404	26° 29.09'	76° 29.72'	4843	04/25/2011
WBL5*	M406	26° 30.06'	71° 29.18'	5295	04/22/2011

Table 7: Summary of U.K. mooring deployment operations.

Mooring Site	Mooring Number	Latitude (N)	Longitude (W)	Depth	Date of Deployment
WBADCP*	N/A	26° 31.50'	76° 52.08'	617	04/30/2011
WB1	N/A	26° 30.19'	76° 48.91'	1375	04/29/2011
WB2	N/A	26° 30.92'	76° 44.57'	3796	04/28/2011
WBH2	N/A	26° 28.61	76° 37.32'	4763	04/27/2011
WB4	N/A	26° 29.21'	75° 48.56'	4745	04/24/2011
WB6*	N/A	26° 29.58'	70° 31.53'	5500	04/21/2011
WBAL2*	N/A	26° 31.57'	76° 52.55'	501	04/30/2011
WB2L7	N/A	26° 30.43'	76° 44.55'	3882	04/28/2011
WB4L7	N/A	26° 29.04'	75° 48.62'	4713	04/23/2011

5 Surface Drifters

Positions of the deployments of the surface drifters are given in Table 8.

Table 8: Summary of drifter deployments.

Drifter ID	Date	Time	Latitude (N)	Longitude (W)
92918	03/25/2010	8:09	36° 59.96’	70° 59.56’
92920	03/25/2010	21:48	34° 59.97’	70° 43.53’
92910	03/29/2010	6:15	26° 30.00’	73° 00.05’
92915	03/29/2010	8:34	26° 29.97’	73° 30.10’
92916	03/29/2010	10:52	26° 30.00’	74° 00.01’
92914	03/29/2010	13:01	26° 30.00’	74° 30.01’
92913	03/29/2010	15:14	26° 30.01’	75° 00.01’
92911	03/29/2010	17:25	26° 30.00’	75° 30.05’
92917	03/30/2010	5:59	26° 29.86’	76° 00.04’
92909	03/30/2010	8:37	26° 29.29’	76° 30.02’
92912	04/15/2010	17:52	27° 01.05’	79° 16.86’
92919	04/15/2010	21:06	27° 01.95’	79° 29.89’

6 Standards and Pre-Cruise Calibrations

The CTD/O2 system is a real-time data acquisition system with the data from a Sea-Bird Electronics, Inc. (SBE) 9plus underwater unit transmitted via a conducting cable to a SBE 11plus deck unit (V2). The serial data from the underwater unit is sent to the deck unit in RS-232 NRZ format. The deck unit decodes the serial data and sends it to a personal computer for display and storage in a disk file using Sea-Bird Seasave software.

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

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

The SBE 911plus underwater unit is configured with dual standard modular temperature (SBE 3 plus) and conductivity (SBE 4) sensors, which are mounted near the lower end cap. The conductivity cell entrance is co-planar with the tip of the temperature sensor probe. The pressure sensor is mounted inside the underwater unit main housing. A centrifugal pump module flushes water through sensor tubing at a constant rate independent of the CTD's motion to improve dynamic performance. Dual dissolved oxygen sensors (SBE 43) are added to the pumped sensor configuration following the temperature-conductivity (TC) pair. A list of sensors used during the cruise can be seen in Table 9.

Table 9: Equipment used during AB1003

Instrument	SN	Stations	Use	Pre-Cruise Calibration	Comment
Sea-Bird SBE 32 24-palce Carousel Water Sampler	32 -	0- 62			
Sea-Bird SBE9plus CTD	0957	0-62			
Paroscientific Digiquartz Pressure Sensor	115173	0-62			
Sea-Bird SBE3plus Temperature Sensor	5140	0- 62	Primary		
Sea-Bird SBE3plus Temperature Sensor	5171	0- 62	Secondary		
Sea-Bird SBE4C Conductivity Sensor	3657	0- 62	Primary		
Sea-Bird SBE4C Conductivity Sensor	1374	0- 2	Secondary		
Sea-Bird SBE4C Conductivity Sensor	1387	3- 5	Secondary		
Sea-Bird SBE4C Conductivity Sensor	1346	6- 62	Secondary		
Sea-Bird SBE43 Dissolved Oxygen Sensor	1348	0- 62	Primary		
Sea-Bird SBE43 Dissolved Oxygen Sensor	1266	0-62	Secondary		
Simrad 807 Altimeter		0- 62			
RDI LADCP - 300 kHz Workhorse		38- 62	Upward		
RDI LADCP - 300 kHz Workhorse		38- 62	Upward		

6.1 Conductivity

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

Four conductivity sensors were used during AB1003, serial numbers (s/n) 3657, 1374, 1387, and 1346. Pre-cruise sensor calibrations were performed at Sea-Bird Electronics, Inc. in Bellevue, Washington during February and February 2010. The coefficients shown in Table 10 were entered into Seasave using the configuration file.

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

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

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

Table 10: Calibration coefficients for the conductivity sensors.

s/n 3657 February 20, 2010	s/n 1374 February 20, 2010	s/n 1387 February 20, 2010	s/n 1346 February 20, 2010
g = -9.90495973e+00	g = -3.96459803e+00	g = -4.22512643e+00	g = -4.07014458e+00
h = 1.40284226e+00	h = 4.83957323e+01	h = 4.81088934e+01	h = 5.35999062e+01
i = -3.15478924e-03	i = -1.07033267e-04	i = -7.45671908e-05	i = 3.39171407e-05
j = 3.03369735e-04	j = 3.21776301e-05	j = 2.83455767e-05	j = 2.96594909e-05
CPcor = -9.5700e-08	CPcor = -9.5700e-08	CPcor = -9.5700e-08	CPcor = -9.5700e-08
CTcor = 3.2500e-06	CTcor = 3.2500e-06	CTcor = 3.2500e-06	CTcor = 3.2500e-06

6.2 Temperature

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

Three temperature sensors (SBE 3plus) were used during AB1003, serial numbers (s/n) 5140 and 5171. Pre-cruise sensor calibrations were performed at Sea-Bird Electronics, Inc. in Bellevue, Washington during February 2010. The following coefficients (Table 11) were entered into SEASAVE® using the configuration file. SEASAVE® automatically implements the equation below and converts between ITS-90 and IPTS-68 temperature scales as desired. The Temperature (ITS-90) is computed from g, h, i, j and f_0 and f is the instrument frequency (kHz) coefficients as follows:

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

Table 11: Calibration coefficients for the temperature sensors.

s/n 5140	s/n 5171
February 18, 2010	February 18, 2010
g = 4.36486155e-03	g = 4.39251665e-03
h = 6.41428593e-04	h = 6.45697898e-04
i = 2.26178538e-05	i = 2.31743619e-05
j = 2.15180306e-06	j = 2.18386423e-06
f_0 = 1000.0	f_0 = 1000.0

6.3 Pressure

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

The pressure sensors utilized during AB1003 was s/n 0957. Pre-cruise sensor calibrations were performed at Sea-Bird Electronics, Inc. in Bellevue, Washington on September 2009.

The following coefficients (Table 12) were entered into SEASAVE® using the configuration file:

Pressure coefficients are first formulated into:

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

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

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

where t is pressure period (μs). SEASAVE® automatically implements this equation.

Table 12: Calibration coefficients for the pressure sensor.

s/n 0957 September 22, 2009
c_1 = -4.701953e+04
c_2 = -3.199230e-01
c_3 = 1.464100e-02
d_1 = 3.748600e-02
d_2 = 0.000000e+00
t_1 = 3.002465e+01
t_2 = -3.417081e-04
t_3 = 4.148380e-06
t_4 = 2.793720e-09
t_5 = 0.000000e+00
Slope = 1.00001000
Offset = -0.70321
AD590M = 1.281500e-02
AD590B = -9.225010e+00

6.4 Dissolved Oxygen

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

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

Under extreme pressure, changes can occur in gas permeable Teflon membranes that affect their permeability characteristics. Some of these changes (plasticization and amorphous/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 1348 and 1266 were used during AB1003. The following oxygen coefficients (Table 13) were entered into SEASAVE® using the configuration file:

Table 13: Calibration coefficients for the dissolved oxygen sensors.

s/n 1348	s/n 1266
March 03, 2010	March 03, 2010
Soc = 5.3820e-01	Soc = 4.8680e-01
Voffset = -0.5202	Voffset = -0.5351
Tau20 = 1.68	Tau20 = 1.33
A = -2.5074e-03	A = -1.6518e-03
B = 1.3829e-04	B = 1.0598e-04
C = -2.5395e-06	C = -2.5899e-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):

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

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® 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.

7 Data Acquisition

CTD/rosette casts were performed with a package consisting of a 24-place, 10-liter rosette frame, a 24-place water sampler (SBE32) and 24, 10-liter Bullister-style bottles. Underwater electronic components consisted of a Sea-Bird Electronics (SBE) 9 plus CTD with dual pumps and the following sensors: dual temperature (SBE3), dual conductivity (SBE4), dual dissolved oxygen (SBE43), and an altimeter. The other underwater electronic components consisted of two RDI LADCPs. A total of 52 CTD/rosette casts were made, usually to within 20 m of the bottom.

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

The CTD was mounted vertically attached to the bottom center of the rosette frame. All SBE4 conductivity and SBE3 temperature sensors and their respective pumps were mounted vertically as recommended by SBE, outboard of the CTD. The CTD was outfitted with dual pumps. Primary temperature, conductivity, and dissolved oxygen were plumbed on one pump circuit and secondary temperature, conductivity, and dissolved oxygen on the other. Pump exhausts were attached to outside corners of the CTD cage and directed downward. The altimeter was mounted on the inside of a support strut adjacent to the bottom frame ring. The two LADCP's were vertically mounted inside the bottle rings with one 300 kHz pointing down, the other 300 kHz transducer pointing up. A niskin bottle had to be removed to mount the upward looking 300 kHz ADCP.

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

7.1 CTD Notes and Problems

The initial test cast (Cast #000) was done to only 200 m to briefly determine whether the sensors were working prior to doing a full water column cast to test the microcat instruments for the moorings. All CTD temperature, conductivity, and oxygen sensors used on the cast and on subsequent casts had been calibrated by the manufacturer, Seabird, immediately prior to the cruise. Sensor performance during this first very shallow cast was excellent. One modulo error was noted immediately as the Seasave software and deck unit were turned on when the CTD was in the water.

Cast #001 was done to test microcat instruments and acoustic releases for the moorings. There was a lengthy 20 minute stop at the bottom of the cast while the mooring technicians

tested the acoustic releases. At about 5300 dbar during the downcast the secondary conductivity sensor spiked to very high values and never full recovered during the cast. During the start of the upcast between the first and second bottle stop there was a wire-wrap problem on the winch. Fixing the problem required sending the package back down to the depth of the bottom bottle stop. Several additional unplanned stops were made during the upcast due to wire-wrap problems. At about 50 dbar on the upcast for this station there was a RS232 communications error reported by the Seasave software and the deck unit died. We were unable to restart the deck unit and software so the cast was finished without the upper 50 dbar of the upcast. The final Niskin bottle was never fired due to the communication problem. Subsequent investigation found that the communication problem was due to a short in the sea-cable near the slip rings on the winch, which resulted in a blown fuse in the CTD deck unit.]

During Cast #002 there were 6 modulo errors very early in the cast. This cast was done for testing of microcat instruments. The secondary conductivity sensor still looked bad (very high) during this cast. The secondary conductivity sensor was replaced after Cast #002.

Because of the modulo errors observed on Cast #002 and because we still observed communication problems with the CTD during on-deck tests, the wiring between the CTD deck unit and the CTD itself was again evaluated. Eventually, after much investigation, it was determined that the wiring between the sea-cable termination and the CTD was bad, and this segment was re-wired. After this there were no further communications problems with the CTD.

The agreement between primary and secondary conductivity sensors looked much better on Cast #003, however at about 1000 dbar on the upcast the secondary conductivity sensor spiked very low and never recovered during the cast. The secondary sensors were back-flushed after Cast #003. During Cast #004 the secondary conductivity cell failed completely, alternating between values of zero and 1999 throughout this cast and Cast #005. The secondary sensor was not replaced for Cast #005 due to the brief time available between these two calibration casts that were needed prior to the mooring work the next day.

The secondary conductivity sensor was replaced after Cast #005. On Cast #006 the agreement between conductivity sensors was excellent. On this cast there was a 30 minute bottle stop for testing of the microcat instruments for the moorings.

Casts #007 and #008 were done purely for testing of acoustic releases for the moorings. No CTD data was collected for these casts. Cast #009 was done to calibrate microcat sensors that had been recovered from the UK moorings. This was the final CTD cast completed on Leg 1.

During Casts #000-#009, between 9 and 11 salinity sample bottles were collected on each cast except for Casts #007 and #008, on which no samples were collected. During Cast #006 dissolved oxygen samples were collected from 5 casts, however a mis-set burette invalidated these samples. No other oxygen samples were collected during Leg 1.

Wire wrap problems persisted with irregular frequency throughout Leg 1 (Casts 000-009), while during Leg 2 the wire-wrap problems were less frequent and were fixed more quickly due to improved procedures.

During Leg 2 the CTD operation was nearly flawless. There were several problems with the lanyard on Niskin bottle 3 getting caught on the CTD safety strap and to a lesser extent the lanyard on Niskin bottle 15 getting caught on the CTD termination wires. Neither problem was serious.

Overall the salinity bottle samples were extremely reliable. Throughout the cruise the temperature in the Autosal room was quite steady, and the multiple operators all did a good job running samples. One issue came up with regards to the oxygen sample titration. During the processing of the samples from Cast #014 the titration light-box failed; the backup unit was used for the remainder of the cruise. The reason for the failed light box was traced to a power supply failure.

The agreement between electronic sensors and bottle sample data was excellent and was comparable with previous cruises. Final calibration will await work at the lab after the sensors have been post-calibrated.

7.2 Data Acquisition Procedure

This report was written after the cruise was completed where no CTD procedures were recorded. On deck pressure was obtained fromt the cruise log book.

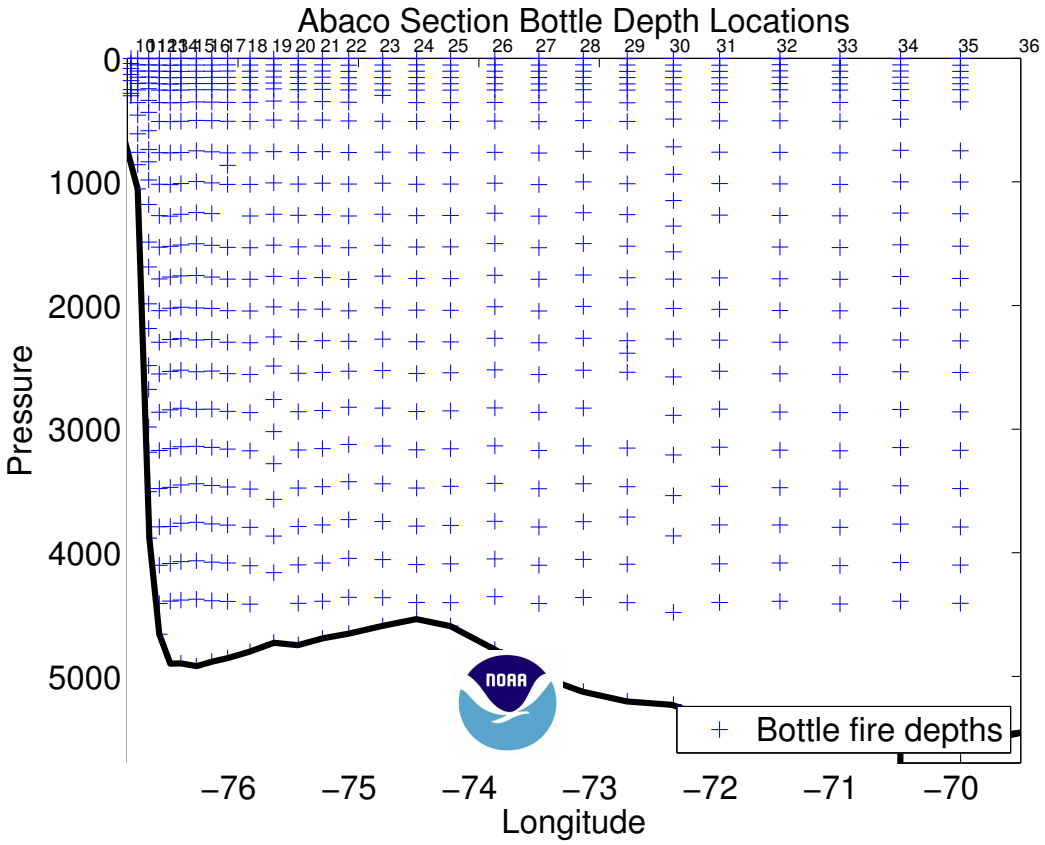

Figure 2: Bottle locations for 26.5°N Deep Western Boundary Current section east of Abaco Island.

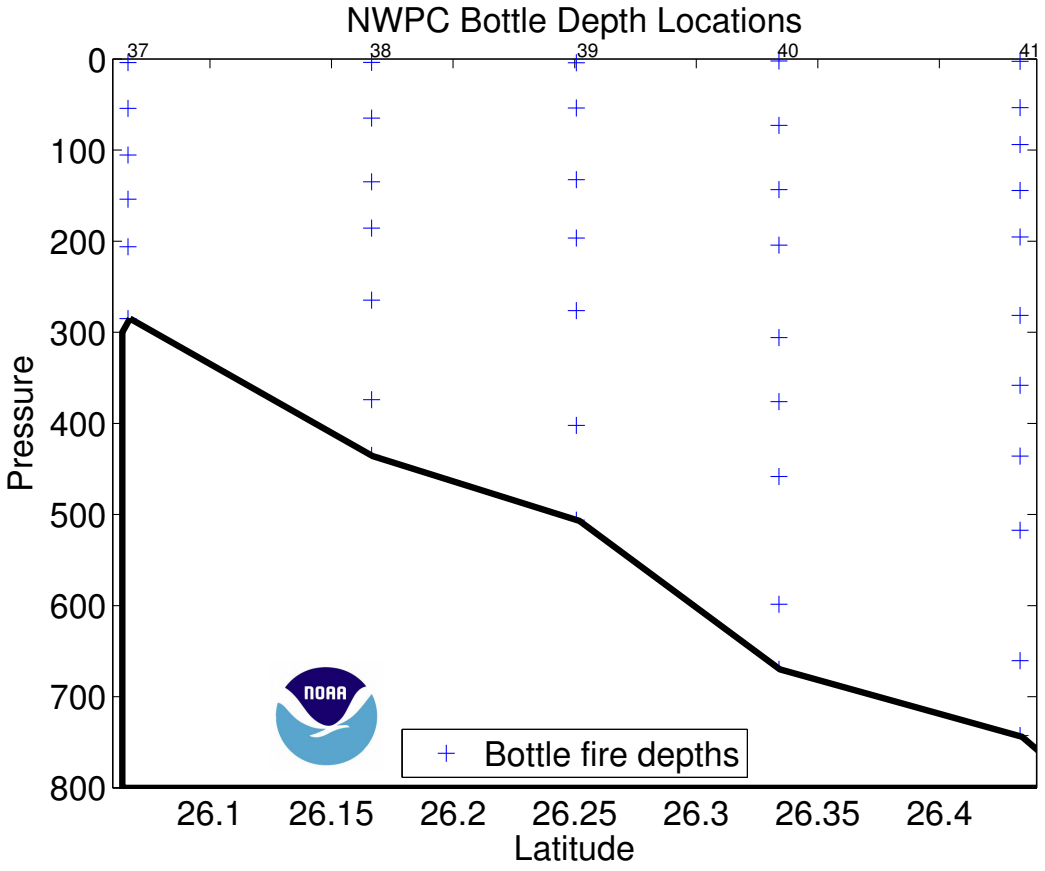

Figure 3: Bottle locations for along the Northwest Providence Channel section.

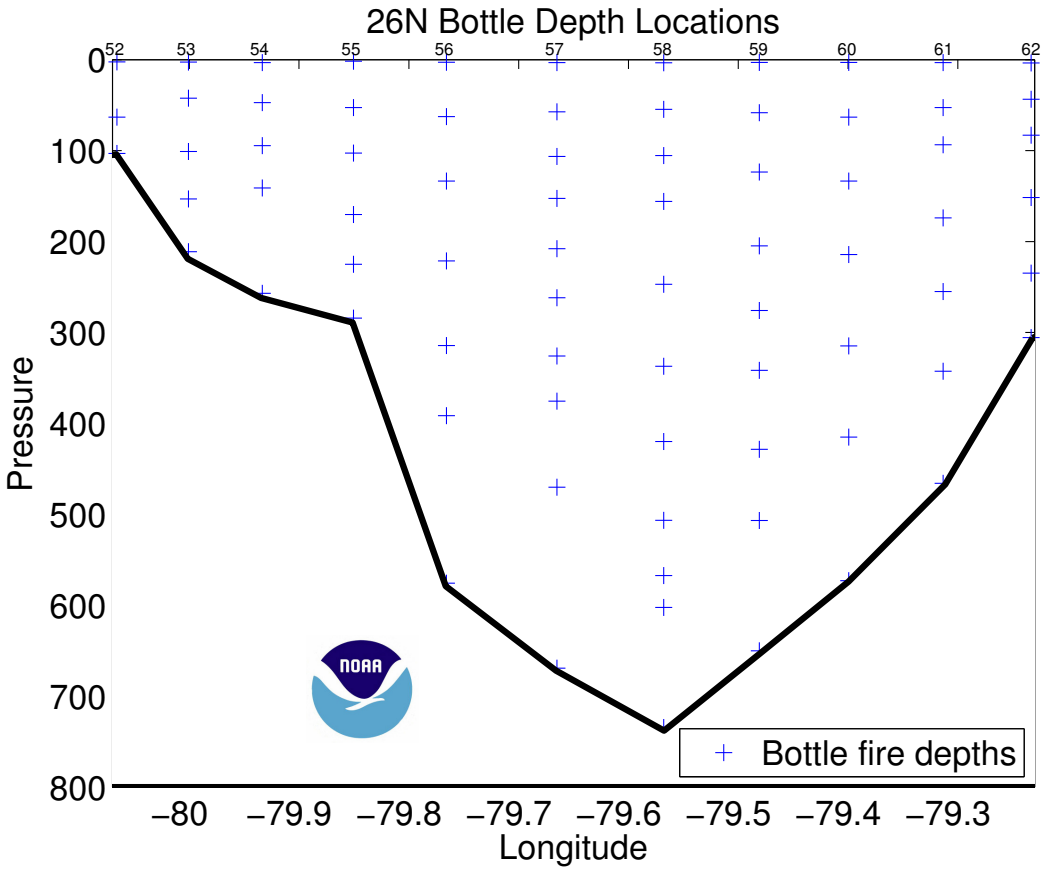

Figure 4: Bottle locations for 26°N section in the Florida Straits.

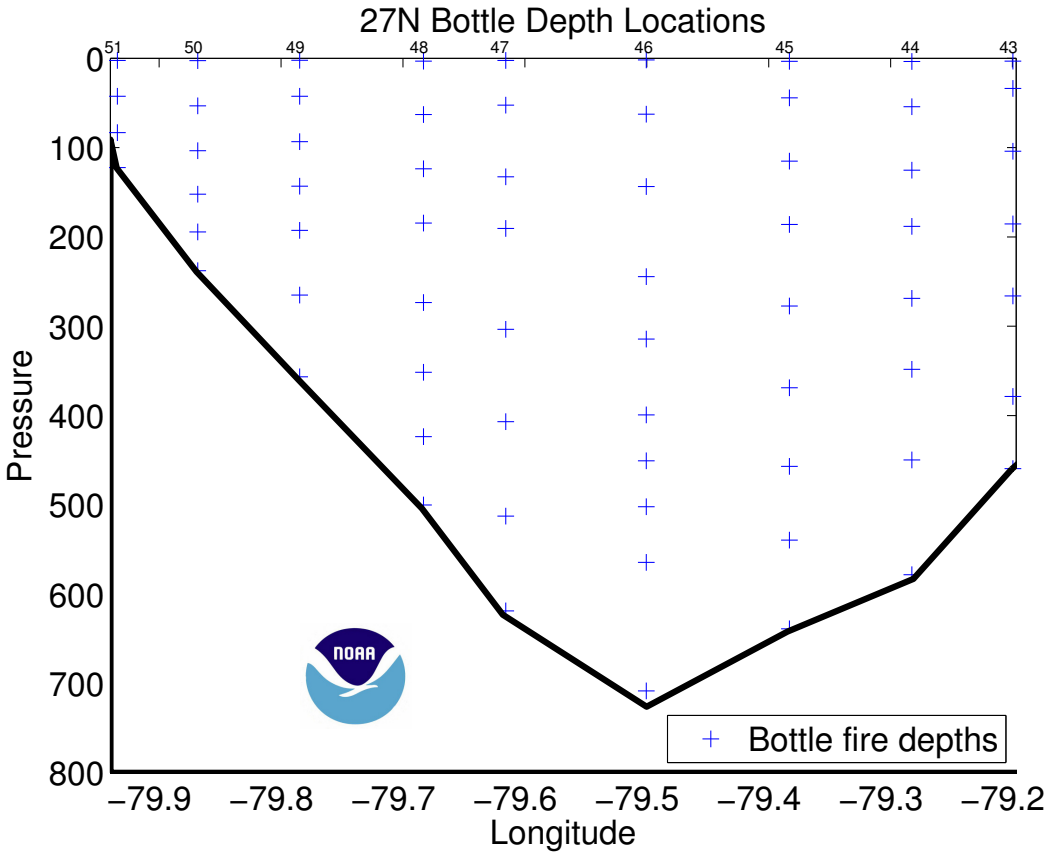

Figure 5: Bottle locations for 27°N section in the Florida Straits.

7.3 Shipboard CTD Data Processing

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

Raw data are acquired from the instruments and are stored unmodified. The conversion module DATCNV uses the instrument configuration and pre-cruise factory calibration coefficients to create a converted engineering unit data file that is utilized by all SBEDataProc® post processing modules. Unless otherwise noted, all calibration parameters given are factory default values recommended by Sea Bird Electronics, Inc. The following is the SBEDataProc® processing module sequence and specifications for primary calibrated data (1 dbar averages) uses the following routines in order for reduction of CTD/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/cm, c1 S/cm, salinity (PSU), salinity 2 (PSU), oxygen voltage V, oxygen 2 voltage V, altimeter, optical sensor, oxygen umol/kg, oxygen 2 umol/kg, oxygen mll/l, oxygen 2 ml/l, oxygen dv/dt, oxygen dv/dt 2, latitude, and longitude. MARKSCAN was used to determine the number of scans acquired on deck and while priming the system to exclude these scans from processing.

2. ALIGNCTD aligns temperature, conductivity, and oxygen measurements in time relative to pressure to ensure that derived parameters are made using measurements from the same parcel of water. Secondary conductivity and oxygen were automatically advanced by 0.073 seconds.

3. BOTTLESUM creates a summary of the bottle data. Bottle position, date, and time were output automatically. Pressure, temperature, conductivity, salinity, oxygen voltage and preliminary oxygen values were averaged over a 5 second interval.

4. WILDEDIT computes the standard deviation of 100 point bins, and then makes two passes through the data. The first pass flags points that differ from the mean by more than 2 standard deviations. A new standard deviation is computed excluding the flagged points and the second pass marks bad values greater than 20 standard deviations from the mean. For this data set, data were kept within a distance of 100 of the mean (i.e., all data).

5. FILTER applies a low pass filter to pressure with a time constant of 0.15 seconds. In order to produce zero phase (no time shift), the filter is first run forward through the file and then run backwards through the file.

6. CELLTM uses a recursive filter to remove conductivity cell thermal mass effects from measured conductivity. In areas with steep temperature gradients the thermal mass correction is on the order of 0.005 PSS-78. In other areas the correction is negligible. The value used for the thermal anomaly amplitude (alpha) was 0.03°C. The value used for the thermal anomaly time constant (1/beta) was 7.0°C.

7. LOOPEDIT removes scans associated with pressure slowdowns and reversals. If the CTD velocity is less than 0.25 m/s or the pressure is not greater than the previous maximum scan, the scan is omitted.

8. DERIVE uses 1 dbar averaged pressure, temperature, and conductivity to compute primary and secondary salinities. Oxygen voltage is used to calculate oxygen concentrations.

9. BINAVG averages the data into 1 dbar bins. Each bin is centered on an integer pressure value, e.g., the 1 dbar bin averages scans where pressure is between 0.5 dbar and 1.5 dbar. There is no surface bin. The number of points averaged in each bin is included in the data file.

10. STRIP removes the computed oxygen variable.

11. TRANS converts the binary data file into ASCII format.

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

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

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

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 61 casts were processed.

7.4 CTD Calibration Procedures

Laboratory calibrations of the CTD pressure, temperature, conductivity, and oxygen sensors were all performed at SBE. The calibration dates are listed in Table 9.

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

In-situ salinity and dissolved O2 check samples collected during each cast were used to calibrate the conductivity and dissolved O2 sensors.

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

7.4.1 Salinity Analysis

A single Guildline Autosal, model 8400B, was used for all salinity measurements. The salinometer readings were logged on a computer using Ocean Scientific International's logging hardware and software. The Autosal's water bath temperature was set to 24°C, which the Autosal is designed to automatically maintain. The salinometer was standardized for each group of samples analyzed using two bottles of standard seawater: one at the beginning and end of each set of measurements. The salinometer output was logged to a computer file. The software prompted the analyst to flush the instrument's cell and change samples when appropriate. For each calibration standard, the salinometer cell was initially flushed 6 times before a set of conductivity ratio reading was taken. For each sample, the salinometer cell was initially flushed at least 3 times before a set of conductivity ratio readings were taken.

IAPSO Standard Seawater Batch P-151 was used to standardize the casts (Table 14).

The salinity samples were collected in 200 ml Kimax high-alumina borosilicate bottles that had been rinsed at least three times with sample water prior to filling. The bottles were sealed with custom-made plastic insert thimbles and Nalgene screw caps. This assembly provides very low container dissolution and sample evaporation. Prior to sample collection, inserts were inspected for proper fit and loose inserts replaced to insure an airtight seal. Laboratory temperature was also monitored electronically throughout the cruise. PSS-78 salinity [UNES81] was calculated for each sample from the measured conductivity ratios.

Table 14: Nominal values for the batches of IAPSO standard seawater.

P-151
Use By: May 2012
K15: 0.99997
Salinity: 34.999

The offset between the initial standard seawater value and its reference value was applied to each sample. Then the difference (if any) between the initial and final vials of standard seawater was applied to each sample as a linear function of elapsed run time. The corrected salinity data was then incorporated into the cruise database.

The running standard calibration values are shown in Figure 6. Through the course of the cruise, the autosal standards changed by 0.0007 in conductivity ratio (about 0.014 in salinity). Stations 56-62 were flagged as 4 due to bad autosal runs.

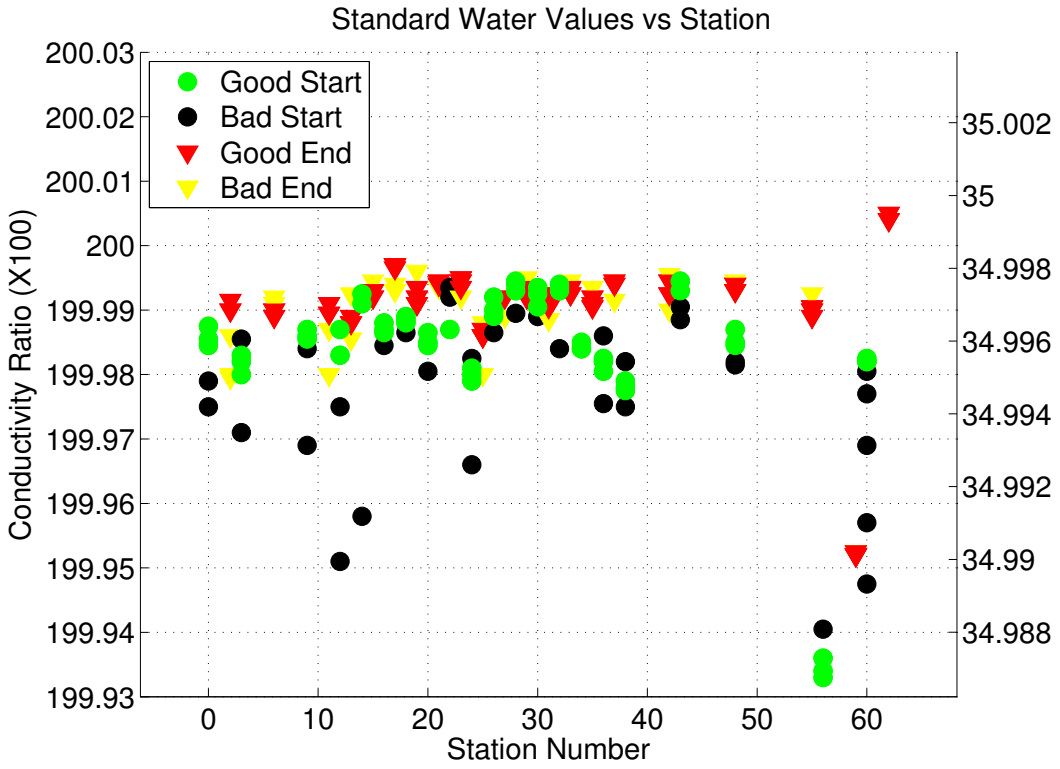

Figure 6: Standard vial calibrations throughout the cruise.

After a comparison of the salinity samples with the calibrated historical data it was determined that the salinity samples were fresher by ≈ 0.006 psu (Figure 7). As a result this caused the sensors to calibrate fresher, away from the historical values, and the salinity samples were unable to be used in final calibrations (Figure 8). Hence we threw out all salinity bottle values. Please do not use. The sensors were calibrated by substituting the salinity samples with salinity values derived from the historical salinity profiles of the cruise before, ab0911, and the cruise after, ab1104, and averaging them. To derive the salinity values a bin search of ± 0.005 °C around each bottle stop temperature and an interpolation was used to get the calibrated historical salinity value in T-S space. This was done for each bottle stop temperature for ab0911 and ab1104 and each salinity value became the substitute "bottle salinity" sample. The two salinity files made from each cruise were then averaged together to make the final salts file for final calibrations, which included a total of 199 salinity values. Only stations deeper than 3000 meters were used to create the salts file. The shallow stations showed too large of a variability and were heavily biased saltier than the sensors.

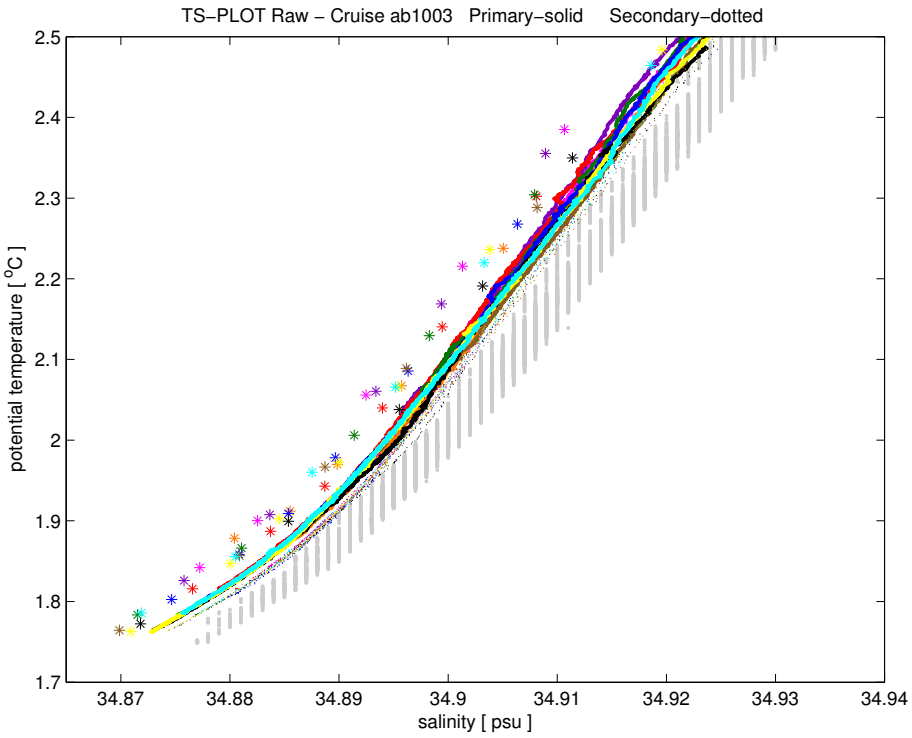

Figure 7: T-S plot of the original salinity samples compared with with the sensors and the historical data.

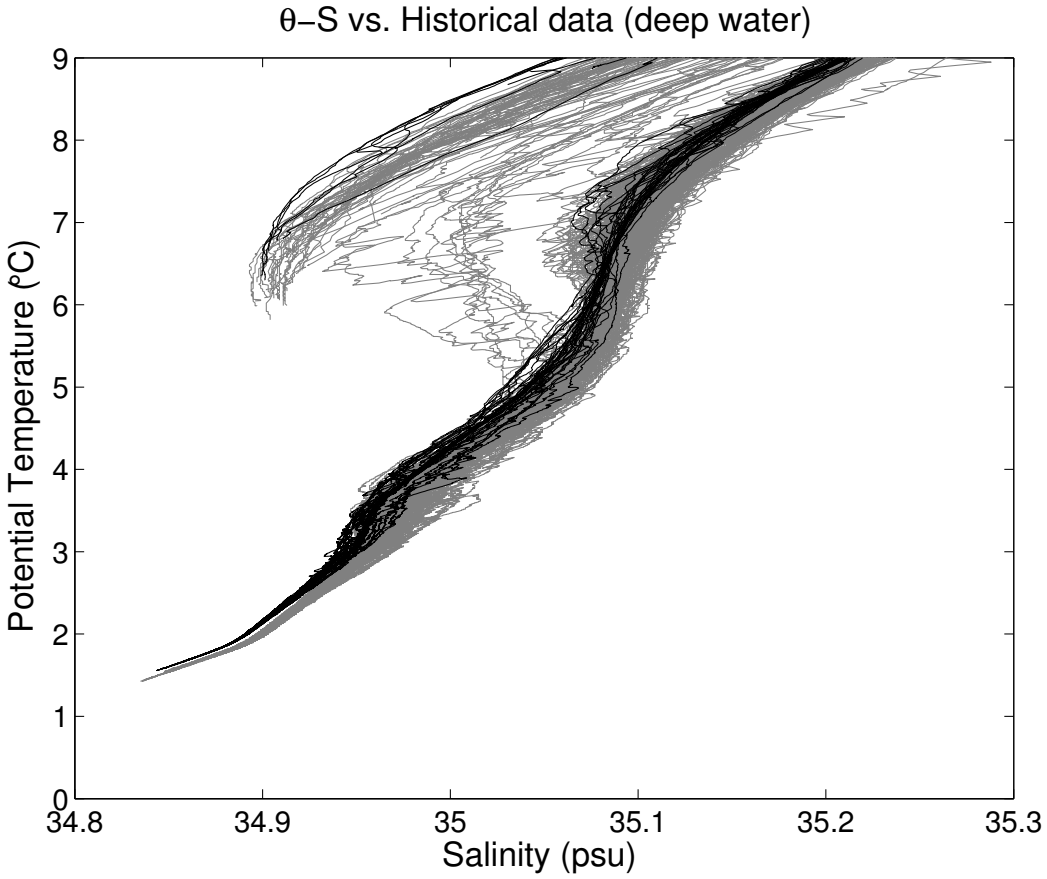

Figure 8: T-S plot of the calibrated sensor using the original bad salinity samples.

7.4.2 Oxygen Analysis

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

Dissolved oxygen samples were drawn from Niskin bottles into calibrated 125-150ml iodine titration flasks using silicon tubing. Bottles were rinsed three times and filled from the bottom, overflowing three volumes while taking care not to entrain any bubbles. The CTD temperatures were used to calculate $umol/kg$ concentrations. 1ml of MnCl2 and 1ml of NaOH/NaI were added immediately after drawing the sample was concluded using a ThermoScientific REPIPET II. The flasks were then stoppered and shaken well. Deionized water (DIW) was added to the neck of each flask to create a water seal. The total number of oxygen samples collected from the rosette was 627 including the duplicate samples, two taken at random every cast. The samples were stored in the lab in plastic totes at room temperature for 1.5 hours before analysis. The data was incorporated into the cruise database shortly after analysis. Thiosulfate normality was calculated from the laboratory temperature for each sample run.

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

The precision of the oxygen measurements during the cruise were estimated by using the duplicate samples. From the 31 duplicate samples (Table 15), which corresponds to 4.6% of the total samples collected during this cruise, the average residual for the duplicates was 0.1 $umol/kg$ with and standard deviation of 0.38 $umol/kg$ (Figure 9).

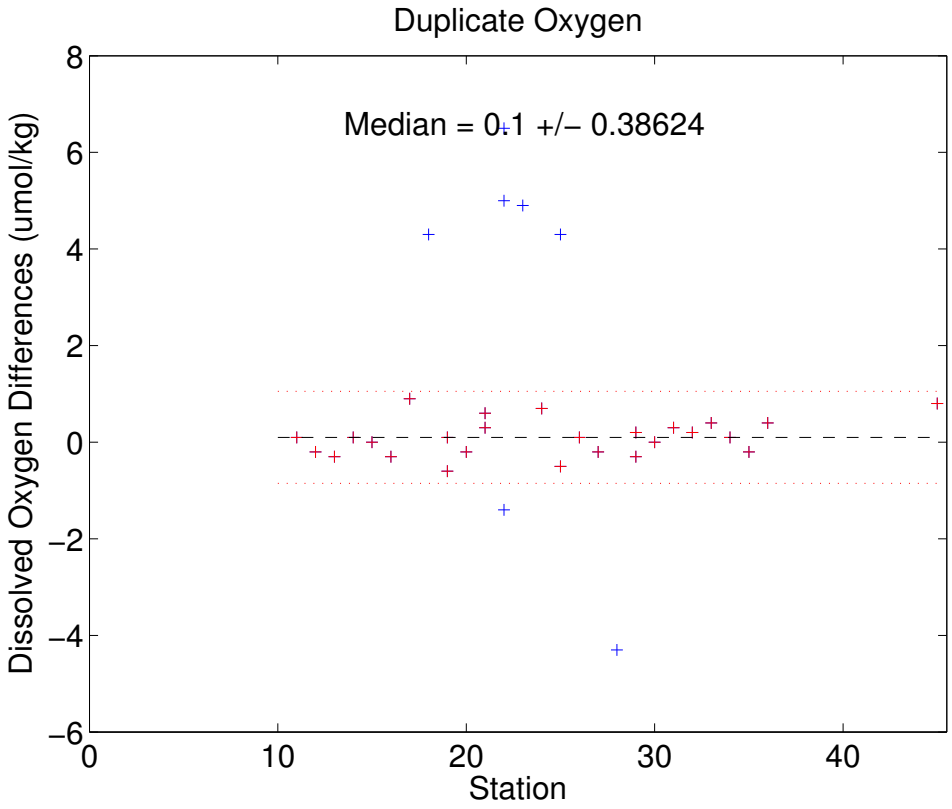

Figure 9: Oxygen residuals of the duplicate samples .

Table 15: Duplicate dissolved oxygen samples collected during the ABACO cruise (values in $umol/kg$).

Station	Niskin	Oxygen1	Oxygen2	Differences
11	8	204.1	204.2	-0.100
12	20	214.1	213.9	0.200
13	16	185.3	185.0	0.300
14	6	277.6	277.7	-0.100
15	11	272.2	272.2	0.000
16	21	205.9	205.6	0.300
17	2	271.9	272.8	-0.900
18	15	138.9	143.2	-4.300
19	5	276.7	276.8	-0.100
19	12	264.3	263.7	0.600
20	10	271.5	271.3	0.200
21	6	277.4	277.7	-0.300
21	23	218.3	218.9	-0.600
22	9	271.5	270.1	1.400
23	7	270.3	275.2	-4.900
24	8	271.8	272.5	-0.700
25	1	261.8	266.1	-4.300
25	16	190.2	189.7	0.500
26	5	276.8	276.9	-0.100
27	13	244.0	243.8	0.200
28	4	276.1	271.8	4.300
29	11	268.9	268.6	0.300
29	19	207.0	207.2	-0.200
30	16	189.2	189.2	0.000
31	4	276.7	277.0	-0.300
32	8	271.6	271.8	-0.200
33	14	162.3	162.7	-0.400
34	17	204.5	204.6	-0.100
35	11	268.9	268.7	0.200
36	17	198.6	199.0	-0.400
45	12	177.5	178.3	-0.800

8 Post-Cruise Calibrations

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

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

Several sensor combinations were used during the cruise as listed in Table 9. Primary TC pair T5140/C3657 was selected for final data reduction. Primary oxygen sensor, s/n 1348, was used for the final data reduction. In addition to the Seasave processing modules, a group of Matlab script files called AOML/CTDCAL Toolbox were used. These scripts were based on earlier work of different groups as well as in modern statistical tools. They cover all the steps of the CTD data processing from the preliminary comparisons between sensors or bottle samples to data reductions and final sensors calibrations.

8.1 CTD Data Processing

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

- FILL_SURFACE was used to copy the first good value of salinity, potential temperature, oxygen and oxygen current back to the surface. The program then calculated temperature and conductivity, and zeroed doc/dt of oxygen current for those records.

- DESPIKE1 removed spikes from primary oxygen current and oxygen temperature data, as well as removing spikes from the primary conductivity sensor. Data were linearly interpolated over de-spiked records. Conductivity was back calculated, and sigma-theta and potential temperature were recomputed for the interpolated records.

- DESPIKE2 removed spikes from secondary sensors in the same method as DESPIKE1.

- Package slowdown and reversals due to ship roll can move mixed water in tow in front of the CTD sensors. This mixture can create artificial density inversions and other artifacts. In addition to the SEASOFT module LOOPEDIT, DELOOP, computes values of density locally referenced between every 1 dbar of pressure to compute N^2 = (- g/p) (dp/dz) and linearly interpolated measured parameters over those records where $N^2 \leq$ -1.0 e -05 s^{-2}.

8.2 CTD Pressure

Pressure sensor calibration coefficients derived from the pre-cruise calibrations were applied to raw pressure data during each cast. Residual pressure offsets (the difference between the first and last submerged pressures) were examined to check for calibration shifts (see Figure 10 and Table 16). Pressure sensor, s/n 0957, was used during the cruise. On deck pressures before the start of each cast was recorded and are plotted in Figure 10. The on deck pressure before the cast was stable at 0.71± 0.094 dbar. An offset correction of 0.71 dbar was applied to the configuration file.

Near surface pressure values (which is taken as the near-surface pressure at the markscan and the last fired bottle pressure) showed little variability over the cruise (3.44 ± 1.39 dbar before and 3.27 ± 0.79 dbar after).

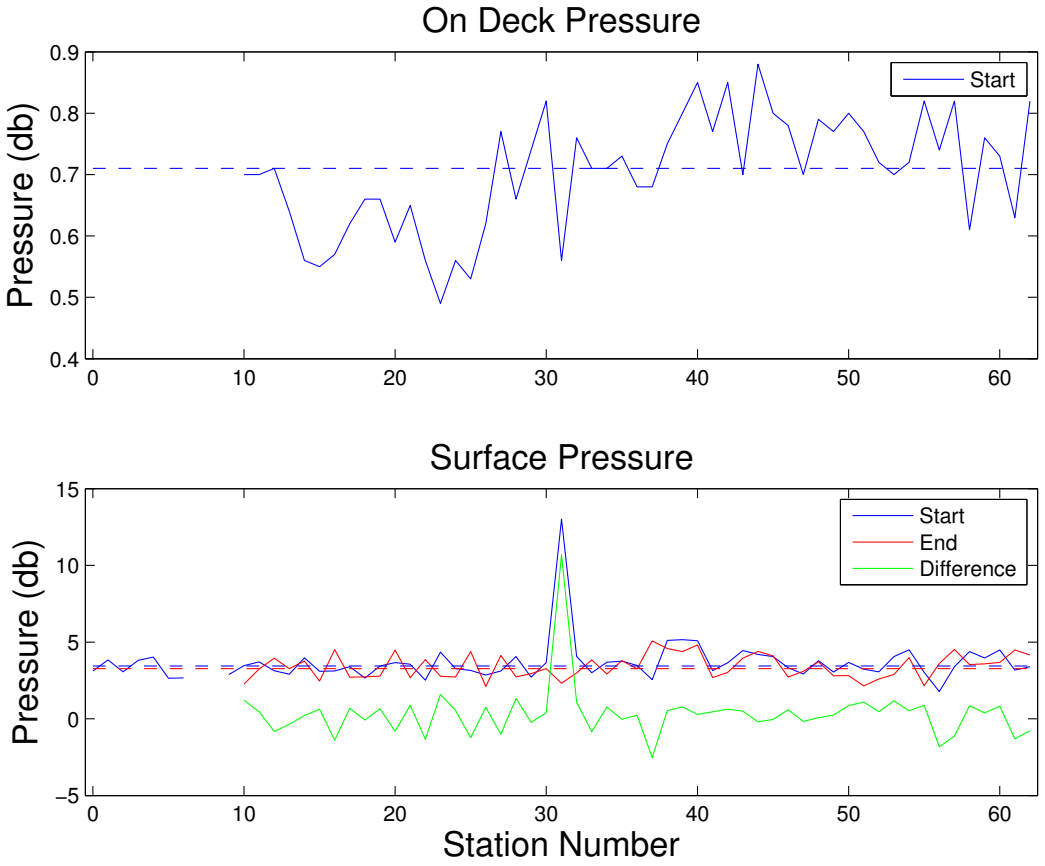

Figure 10: Pressure differences vs. station number. Top panel is the pressures measured on deck before the cast (blue). Bottom panel are the sea surface pressure values measured at the start of the downcast (blue), at the end of the upcast (red) and their respective difference (green).

Table 16: Near surface Pressure values and scan number used to remove surface soak and on-deck values. Stations 7 and 8 casts were acoustic release tests, no CTD data collected.

Station	Markscan	Deck Prs Start	Deck Prs End	Sfc Prs Start	Sfc Prs End
0	184			3.1200	
1	4181			3.8400	
2	2704			3.0600	
3	4812			3.8100	
4	4005			4.0200	
5	3125			2.6400	
6	3439			2.6600	
7					
8					
9	3320			2.8800	
10	4281	0.7000		3.4700	2.2640
11	3409	0.7000		3.7100	3.2410
12	3735	0.7100		3.1300	3.9500
13	2213	0.6400		2.9100	3.2710
14	2714	0.5600		3.9800	3.7710
15	1948	0.5500		3.0900	2.4590
16	2276	0.5700		3.1200	4.5090
17	1626	0.6200		3.3900	2.7120
18	1494	0.6600		2.6500	2.7320
19	3027	0.6600		3.4400	2.7790
20	2863	0.5900		3.6600	4.4680
21	2422	0.6500		3.5600	2.6820
22	2403	0.5600		2.5200	3.8530
23	2904	0.4900		4.3400	2.7640
24	2482	0.5600		3.2700	2.7200
25	2977	0.5300		3.1500	4.3750
26	2192	0.6200		2.8500	2.1080
27	2550	0.7700		3.1200	4.1290
28	2657	0.6600		4.0500	2.7340
29	2776	0.7400		2.7100	2.9410
30	1993	0.8200		3.6600	3.2660
31	2425	0.5600		13.0100	2.3180
32	2780	0.7600		4.0700	2.9930
33	2550	0.7100		3.0000	3.8310
34	3365	0.7100		3.6800	2.9210
35	3498	0.7300		3.7500	3.7870
36	4370	0.6800		3.4800	3.2530
37	2217	0.6800		2.5500	5.0710
38	1936	0.7500		5.1100	4.5810

39	1813	0.8000	5.1600	4.3780
40	2299	0.8500	5.0900	4.8060
41	2762	0.7700	3.1400	2.6840
42	1816	0.8500	3.6500	3.0240
43	2064	0.7000	4.4500	3.9520
44	2712	0.8800	4.1900	4.3920
45	2217	0.8000	4.0500	4.0970
46	1891	0.7800	3.3200	2.7240
47	1697	0.7000	2.9200	3.0890
48	1686	0.7900	3.7900	3.7240
49	1689	0.7700	3.0500	2.8040
50	2044	0.8000	3.6700	2.8140
51	1617	0.7700	3.2300	2.1450
52	2341	0.7200	3.0600	2.5920
53	1927	0.7000	4.0500	2.8800
54	2590	0.7200	4.5000	3.9830
55	2388	0.8200	3.0300	2.1500
56	2061	0.7400	1.7700	3.6050
57	2722	0.8200	3.4000	4.5240
58	2544	0.6100	4.3800	3.5360
59	2399	0.7600	3.9600	3.5770
60	2278	0.7300	4.4900	3.6700
61	2715	0.6300	3.1800	4.4870
62	2012	0.8200	3.3900	4.1630

8.3 CTD Temperature

Temperature sensor calibration coefficients derived from the pre-cruise calibrations were applied to raw primary and secondary temperature data during each cast. Data accuracy, reproducibility and stability were examined by tabulating the difference between the two different temperature sensors over a range of pressures (bottle trip locations) for each cast. These comparisons are summarized in Figure 11, which shows a median temperature difference between the two sensors of 0.0001 °C and a standard deviation of 0.0012 °C.

There is a slight pressure dependence between the two temperature sensors starting around 3000 m of about 0.0005 °C and is shown below in Figure 12.

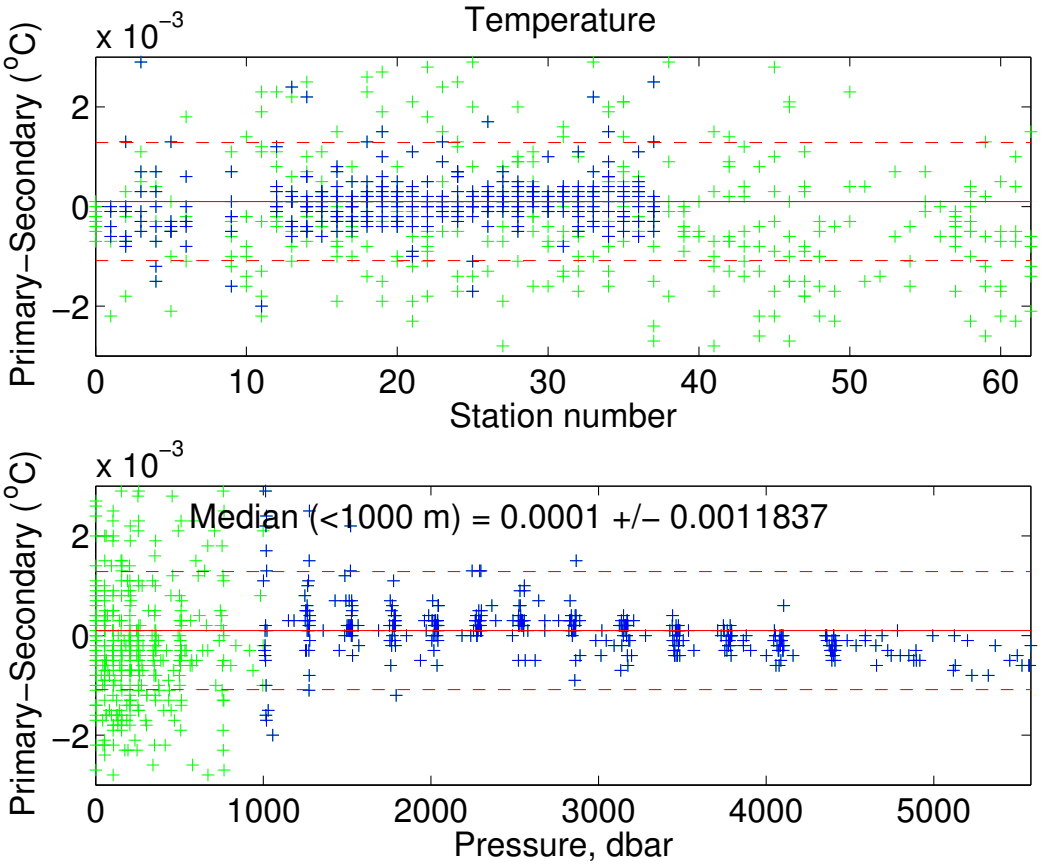

Figure 11: Temperature differences (after corrections) between sensors by station number (top) and pressure (bottom). The green represents the surface data down to 1000 dbar. The blue represents data below 1000 dbar. The red solid line represents the median with the red dashed representing the standard deviation (same for top and bottom).

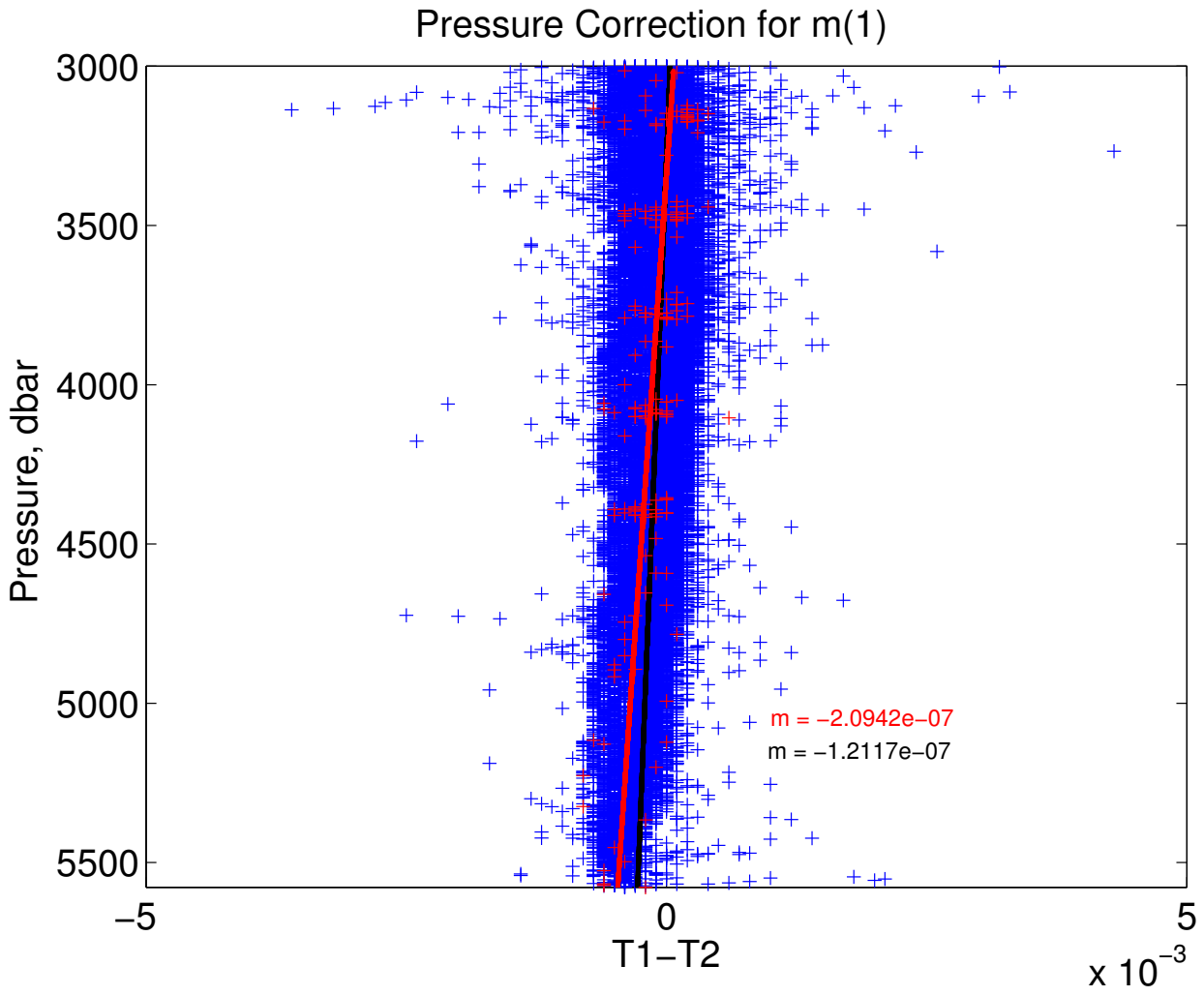

Figure 12: Pressure dependent correction for temperature differences of the downcast profile (blue) with slope fit (black) and the upcast with slope fit (red).

8.4 Conductivity

Conductivity sensor calibration coefficients derived from the pre-cruise calibrations were applied to raw primary and secondary conductivities. Comparisons between the primary and secondary sensors and between each of the sensors to conductivity calculated from bottle salinities were used to derive conductivity corrections. Uncorrected C1-C2 are shown in Figure 13 to help identify sensor drift. Several conductivity sensor sets were used throughout the cruise. There is a strong pressure dependence between the primary and secondary sensors. The pressure dependence between the two pairs of conductivity sensors can be seen in Figures 14. The sensors show a median difference of -0.0011 S/m and a standard deviation of 138.58 mS/m. The high standard deviation is due to a failure of the secondary conductivity sensor at stations 4 and 5. There was a pressure dependence between both sensors, but was linear (Figure 14). The primary sensor, s/n 3657, was used for all the final data values (Figure 15).

The AOML/CTDCAL Toolbox automatically applies a quality control to the data based on comparison with a normal distribution. After these procedures 191 data points (95.98 %) 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 and are applied to

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

with

s/n 3657
m= 1.0004630
p_1= -2.79040e-05
b= -0.0132699
$pcor$= 2.9882781-07

where C_{bottle} is bottle conductivity (S/m), C_{CTD} is pre-cruise calibrated CTD conductivity (S/m), m is the conductivity slope, b is the offset (S/m), P is the pressure, $pcor$ is the pressure correction coefficient, $station$ is the station number and p_1 is the polynomial coefficient. The fit is also weighted in such way that the final solution is preferentially forced to fit the data below a specified depth, in this case 1000 dbar.

The coefficients estimated by the equation above were then applied to the CTD conductivities and the final results (Figure 15 to Figure 19) show a residual of -2.28 · 10-4 psu (-1.63 · 10-4 psu for the data below 1000 dbar) and a standard deviation of 0.0022 psu (0.0022 psu

for the data below 1000 dbar). Also 77.0% of the residuals for the data are within the confidence limits determined by the WOCE (± 0.002 psu) and this number increases to 77.1% if we consider only the data below 1000 dbar.

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

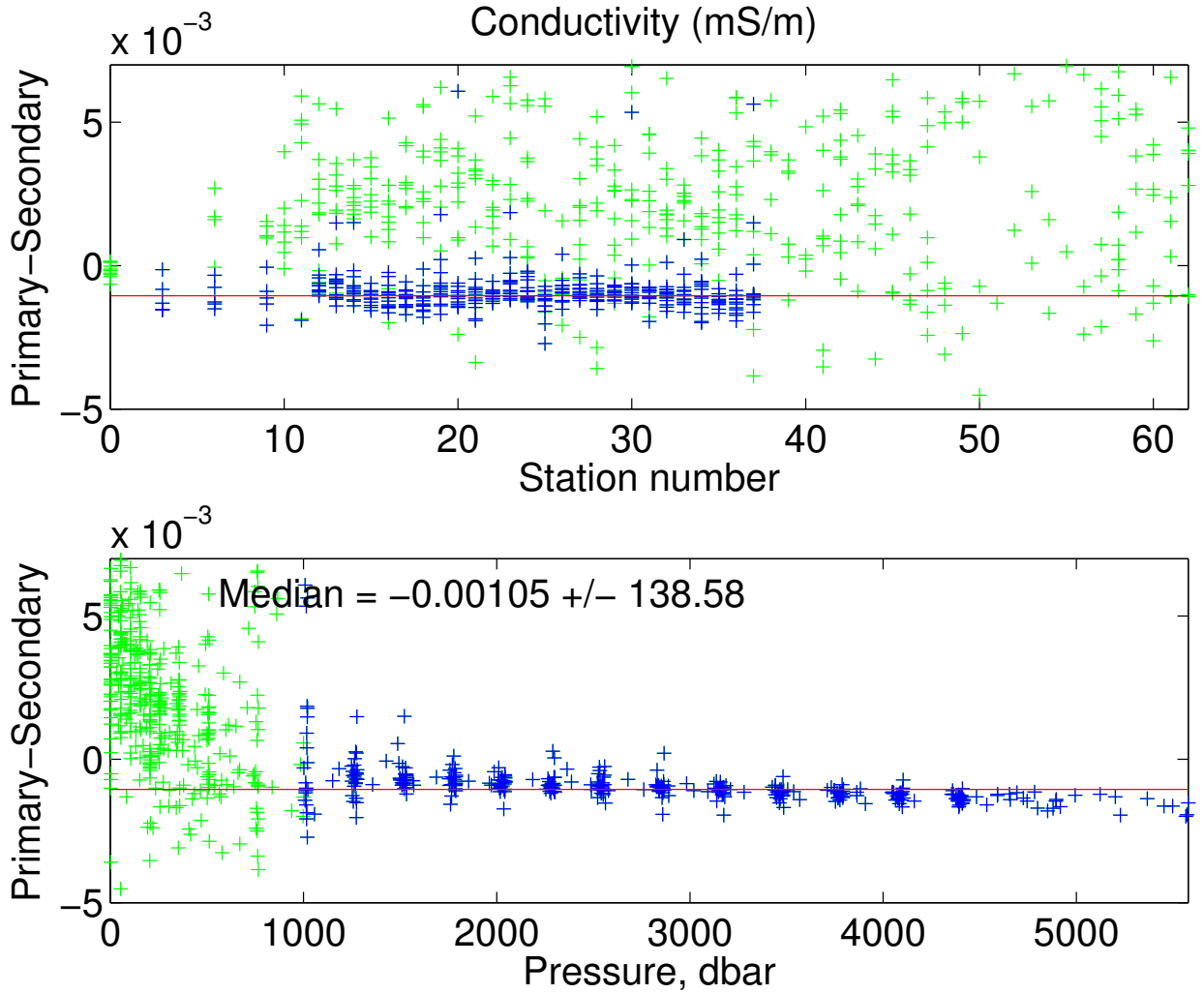

Figure 13: Conductivity (S/m) differences between sensors by station (top) and pressure (bottom). The red solid line represents the median with the red dashed representing the standard deviation.

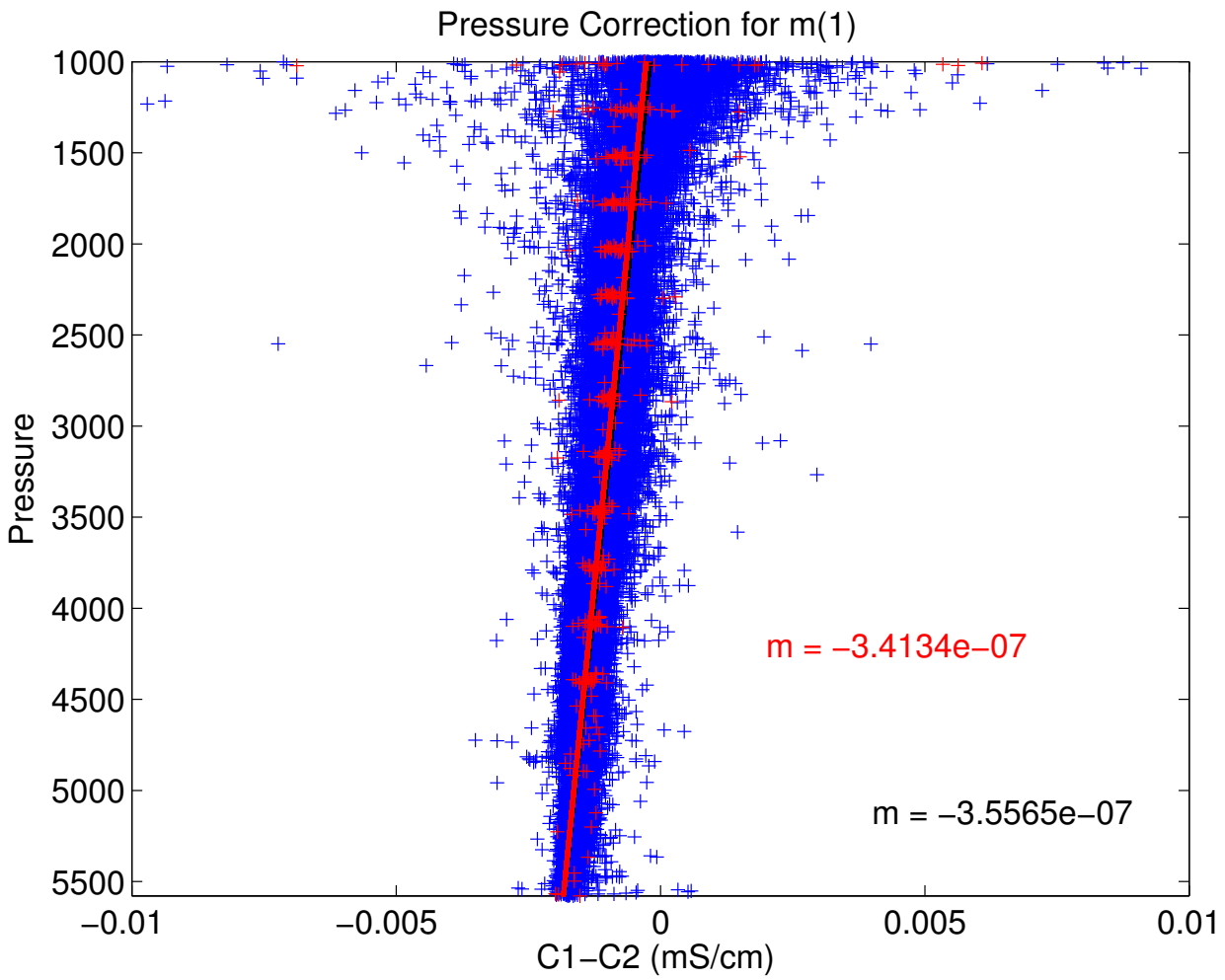

Figure 14: Pressure dependent correction for conductivity differences for stations 1-62 with the downcast profile (blue) with slope fit (black) and the upcast with slope fit (red).

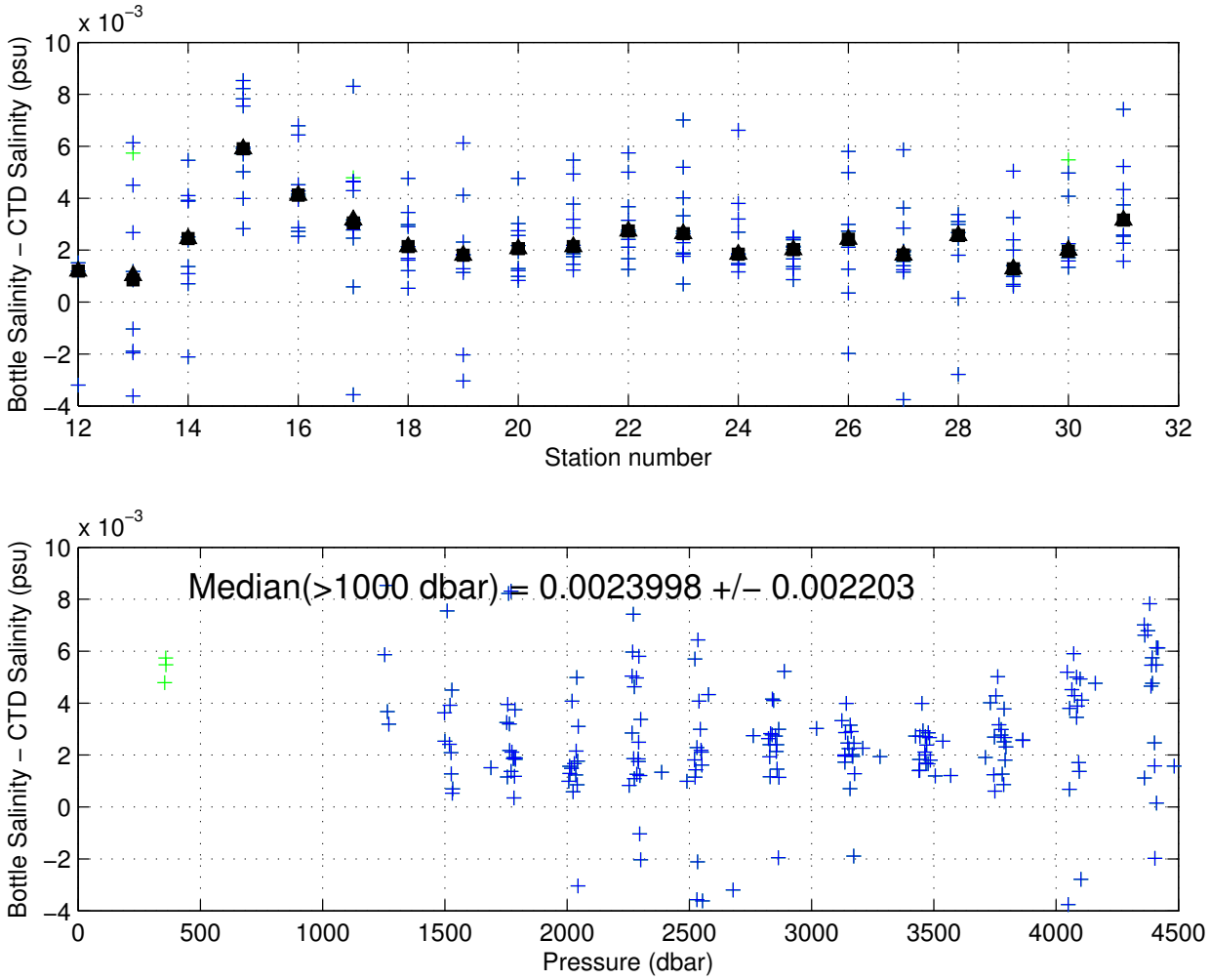

Figure 15: Bottle and uncalibrated primary CTD salinity differences plotted against pressure. The green crosses represent all data points and the blue are the data points below 1000 dbar. The median was calculated using only the data below 1000 dbar.

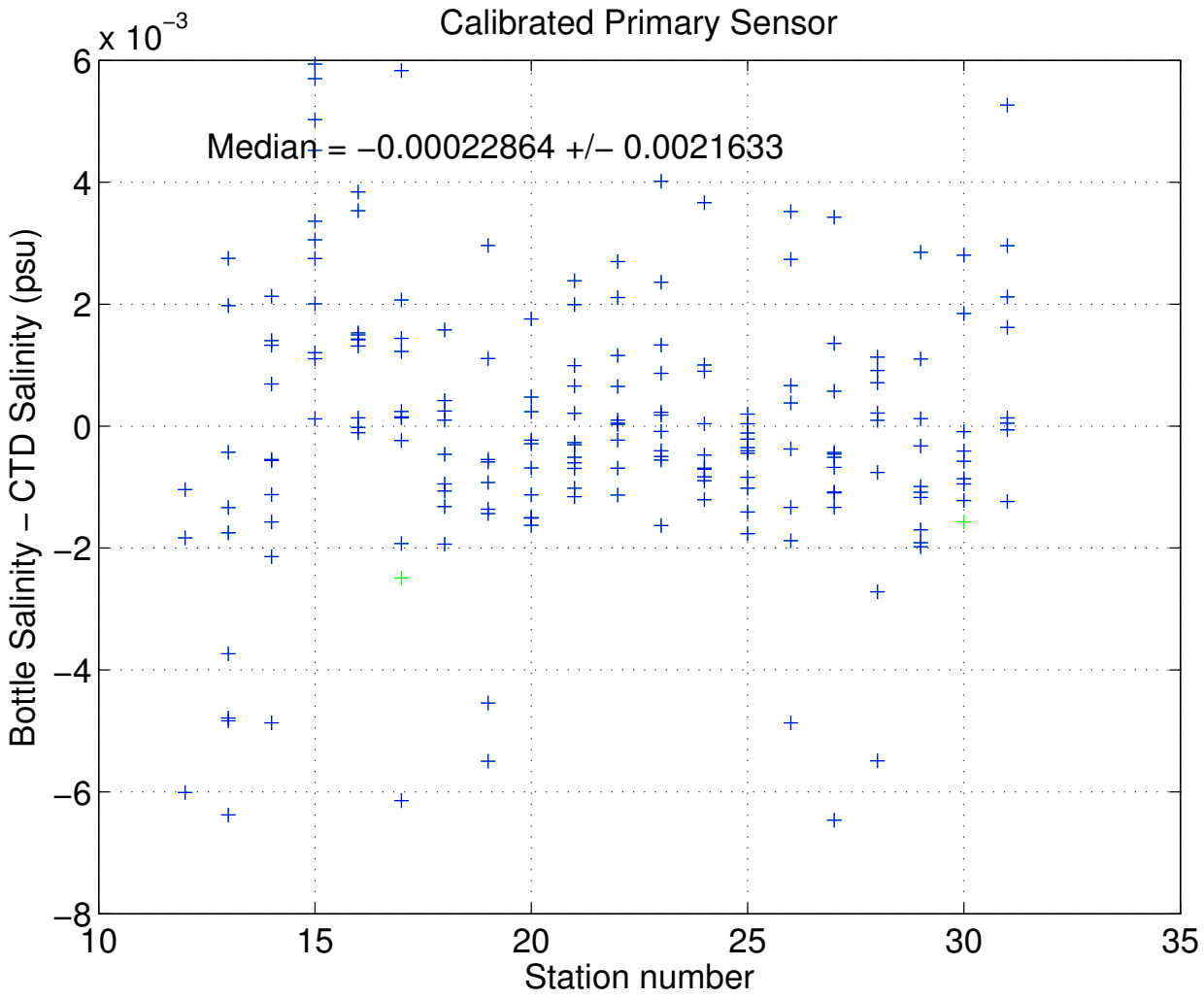

Figure 16: Bottle and calibrated primary CTD salinity differences plotted vs. station.

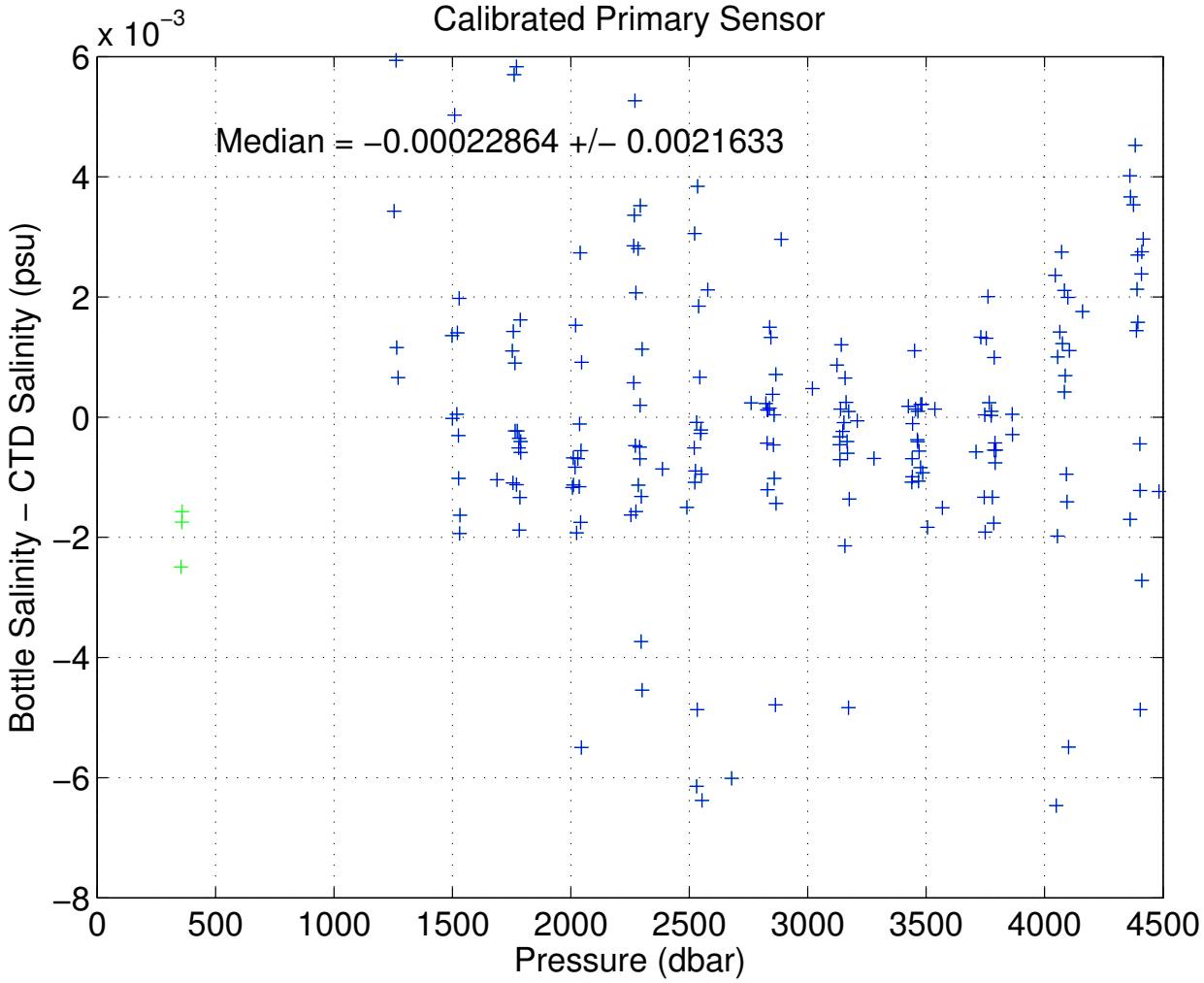

Figure 17: Bottle and calibrated primary CTD salinity differences plotted vs. pressure.

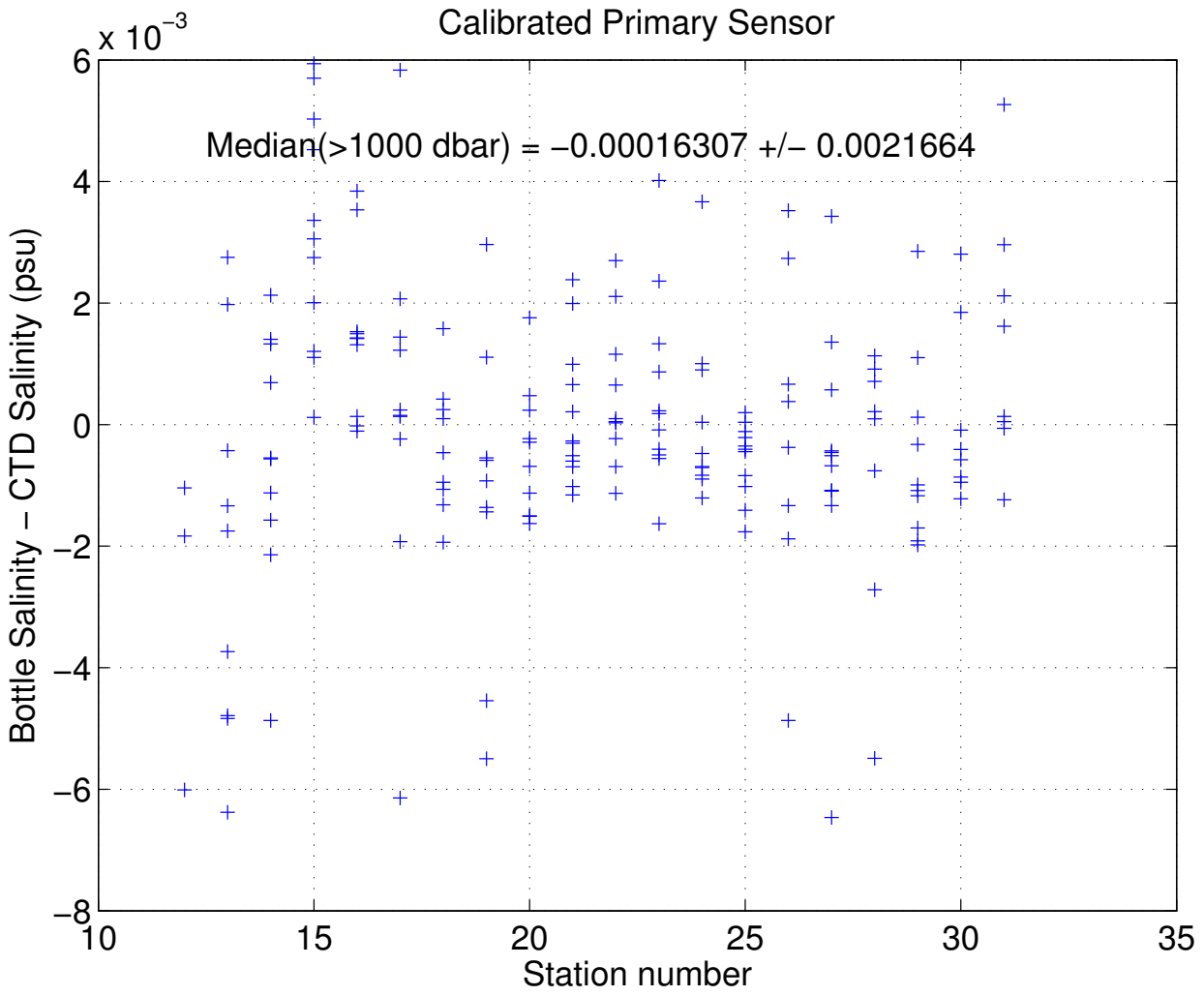

Figure 18: Bottle and calibrated primary CTD salinity differences plotted vs. station below 1000 dbar.

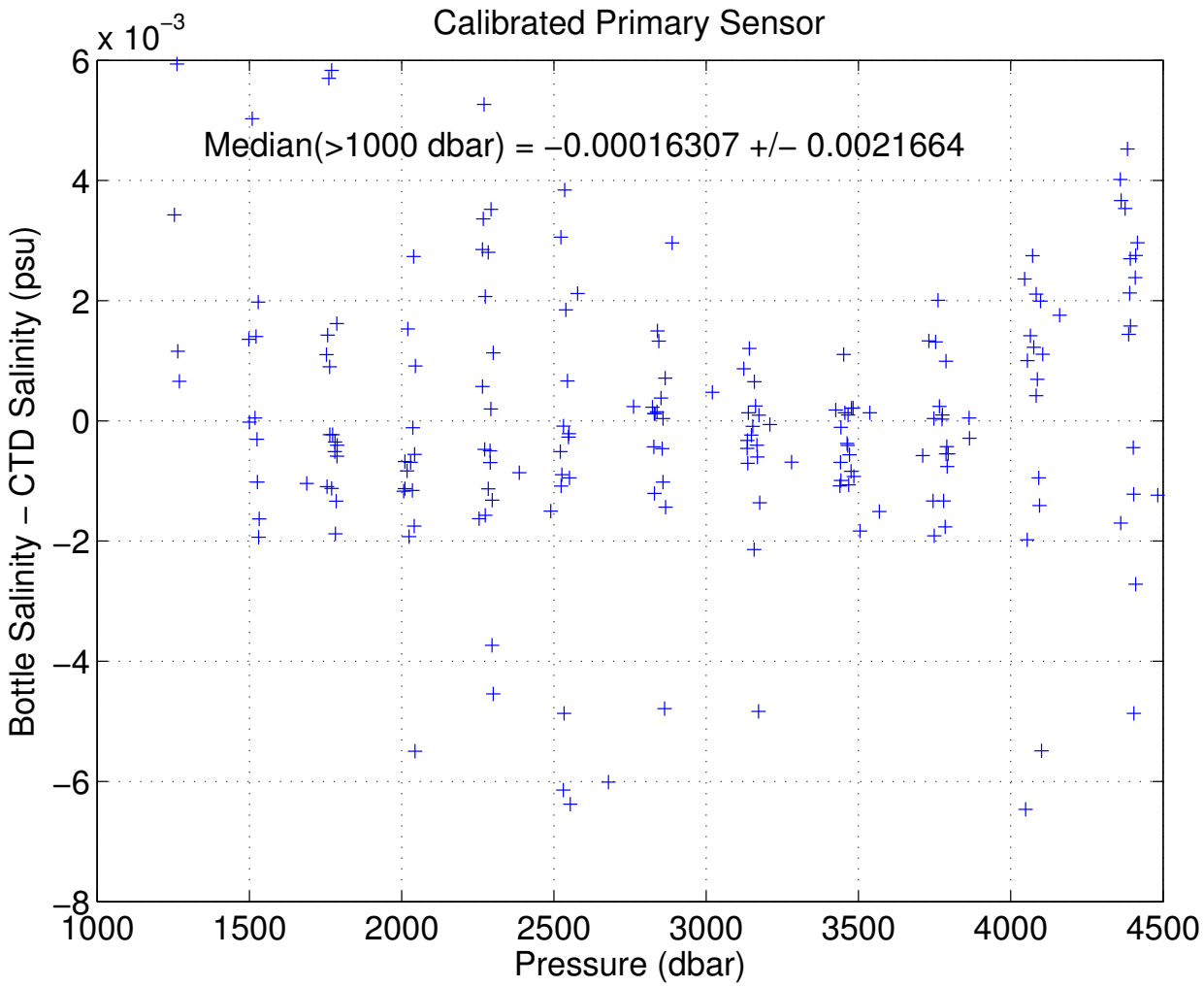

Figure 19: Bottle and calibrated primary CTD salinity differences plotted vs. pressure below 1000 dbar.

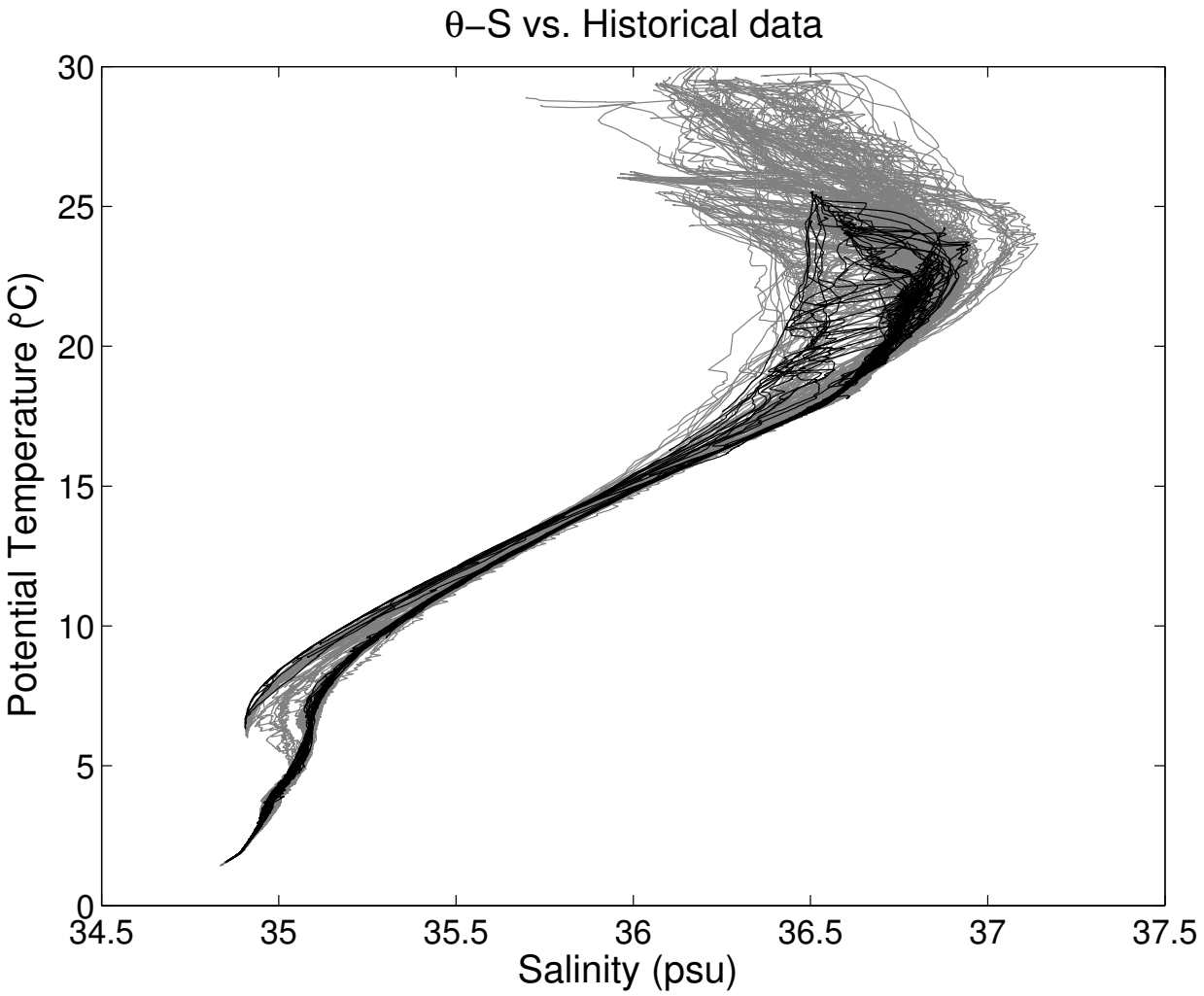

Figure 20: Potential Temperature - Salinity diagram for all stations. The solid black lines are the data collected during this cruise; the solid gray lines are data from the historical database.

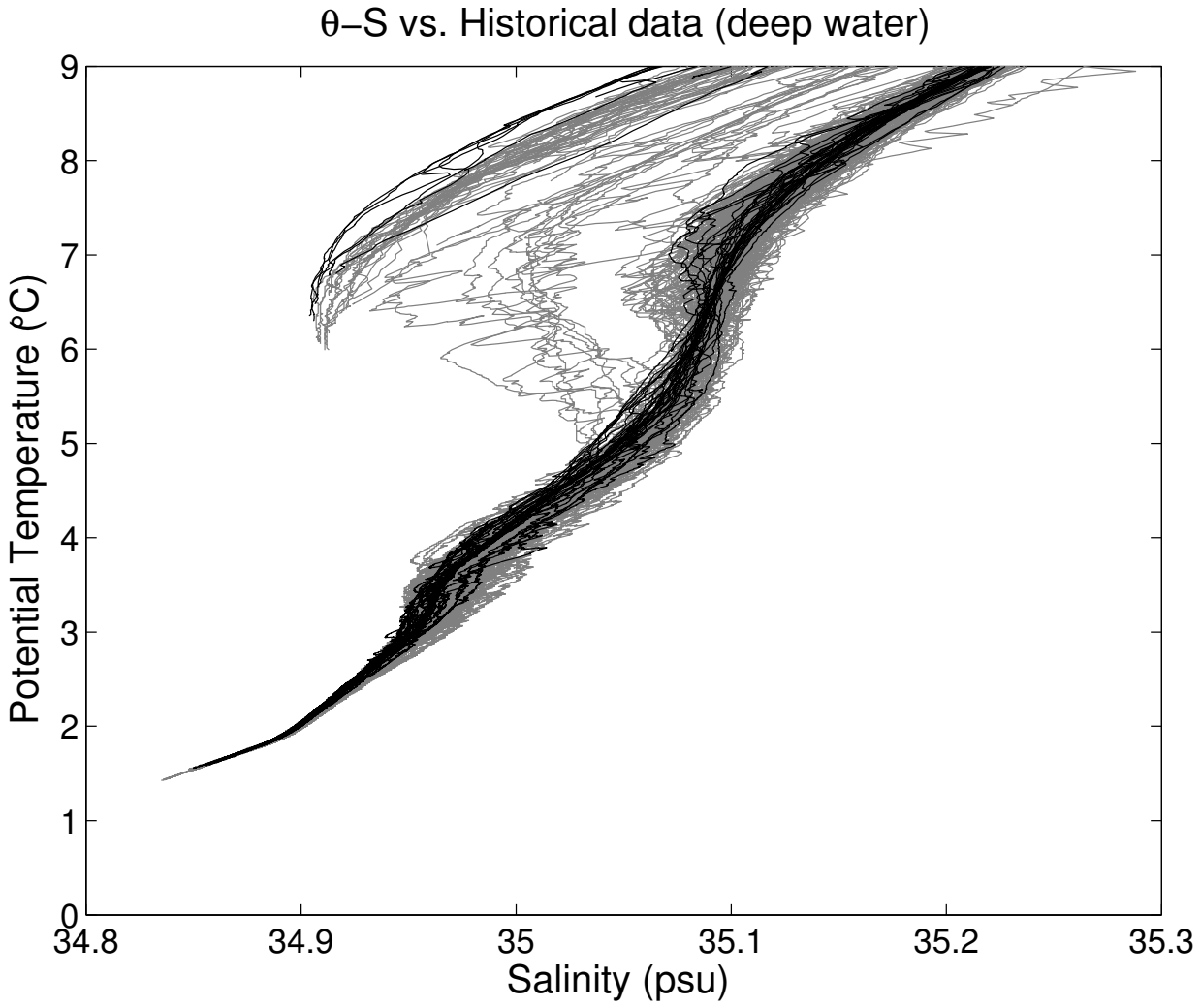

Figure 21: Potential Temperature - Salinity diagram for all stations. The solid black lines are the data collected during this cruise; the solid gray lines are data from the historical database.

8.5 Dissolved Oxygen

Two SBE43 dissolved O_2 (DO) sensors were used on this leg (Table 9). Due to a hysteresis problem with the oxygen sensors the DO sensors were calibrated to dissolved O2 check samples by matching the 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 Matlab® sub-routine called `oxfit.m` from the AOML CTD/CAL TOOLBOX performs a non-linear least squares regression using the Gauss-Newton algorithm with Levenberg-Marquardt modifications for global convergence. This algorithm is independent of the first coefficients guess and demonstrates excellent convergence. This `oxfit.m` routine includes an optional time drift term (related with the station number), allowing all stations to be calibrated without breaking into discrete groupings. The Owens and Millard (1985) algorithm was modified as follows:

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

with

	S/N 1348 Sta 1-37	S/N 1348 Sta 38-62
Soc	0.5437661	0.5410252
V_offset	-0.5129800	-0.5535152
tau	0.11	0.75
A	-0.0070464	-0.0018281
B	0.0004574	0.0001732
C	-0.0000090	0.0000045
E	0.0367219	0.0415893
$p1$	0.0002748	0.0002748

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 22) was evaluated. The sensors show a median difference of 4.129 $umol/kg$ and a standard deviation of 32.47

$umol/kg$. The high standard deviation is due to the bad secondary conductivity sensor in stations 4 and 5. The primary sensor was chosen (Figure 23) and the sensor shows a median difference of 6.72 $umol/kg$ and a standard deviation of 2.54 $umol/kg$ compare to the oxyen bottle data.

The coefficients for oxygen sensor, s/n 1348, were applied to all the stations. Also, analogous to the conductivity, AOML/CTDCAL Toolbox automatically applies a quality control to the data based on comparison with a normal distribution. After these procedures 668 data points (84.7%) were used in the final calculations.

By minimizing the differences between the oxygen samples and the CTD oxygen estimated from the equation described in this section, the new coefficients above were calculated and then applied to the CTD original data (Figure 24 to Figure 27). The residual is 0.006 $umol/kg$ (0.02 $umol/kg$ for the data below 1000 dbar) and the standard deviation 0.98 $umol/kg$ (0.87 $umol/kg$ for the data below 1000 dbar). Also 99.6% 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 increases to 99.7% if we consider only the data below 1000 dbar.

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

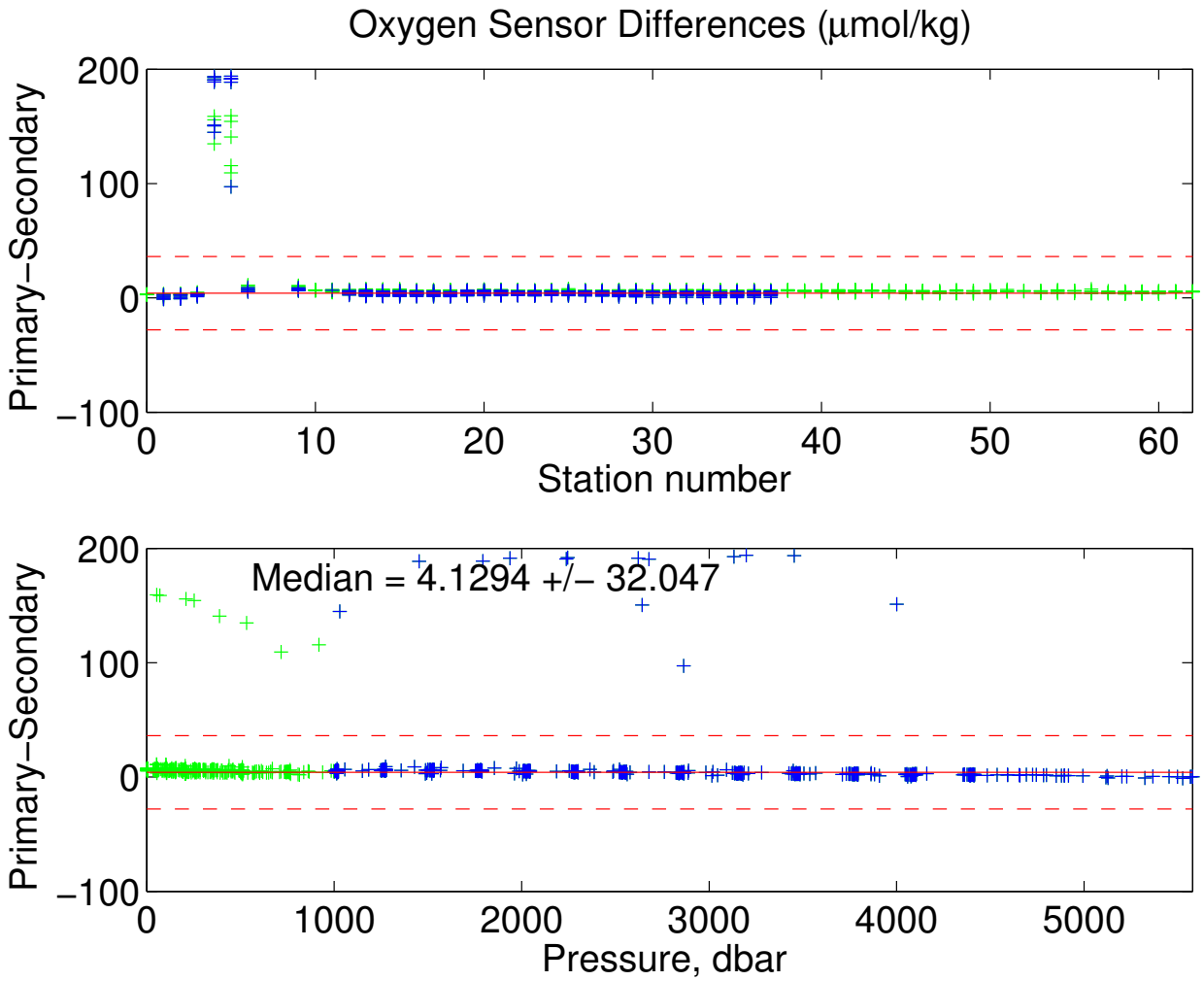

Figure 22: Dissolved oxygen differences between sensors by station (top) and by pressure (bottom). Sensor changes at station 15 and 24. The red solid line represents the median with the red dashed representing the standard deviation.

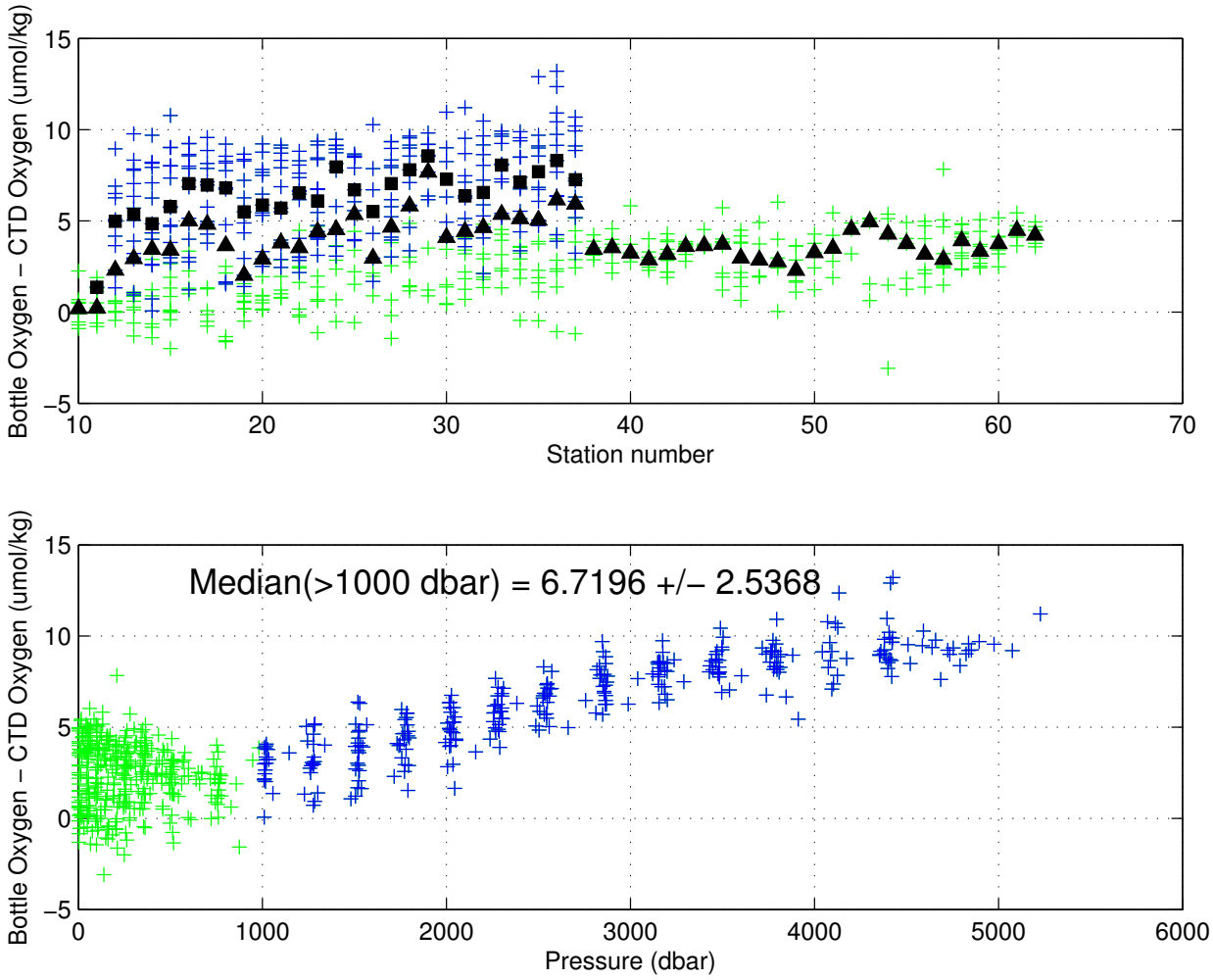

Figure 23: Bottle and uncalibrated primary CTD oxygen differences plotted against station number. The green crosses represent all data points and the blue are the data points below 1000 dbar. The median was calculated using only the data below 1000 dbar.

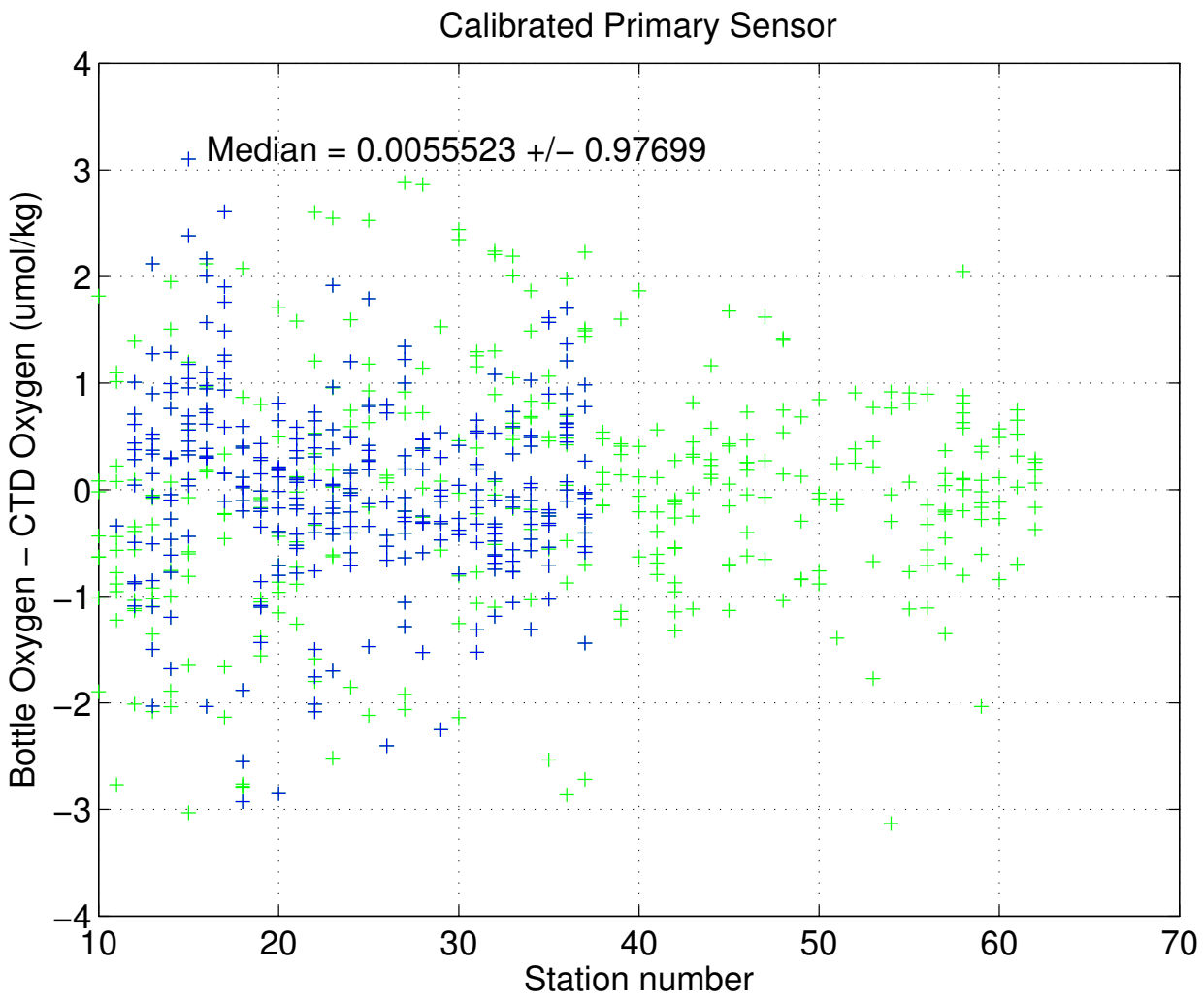

Figure 24: Bottle and calibrated primary CTD oxygen differences plotted vs. station.

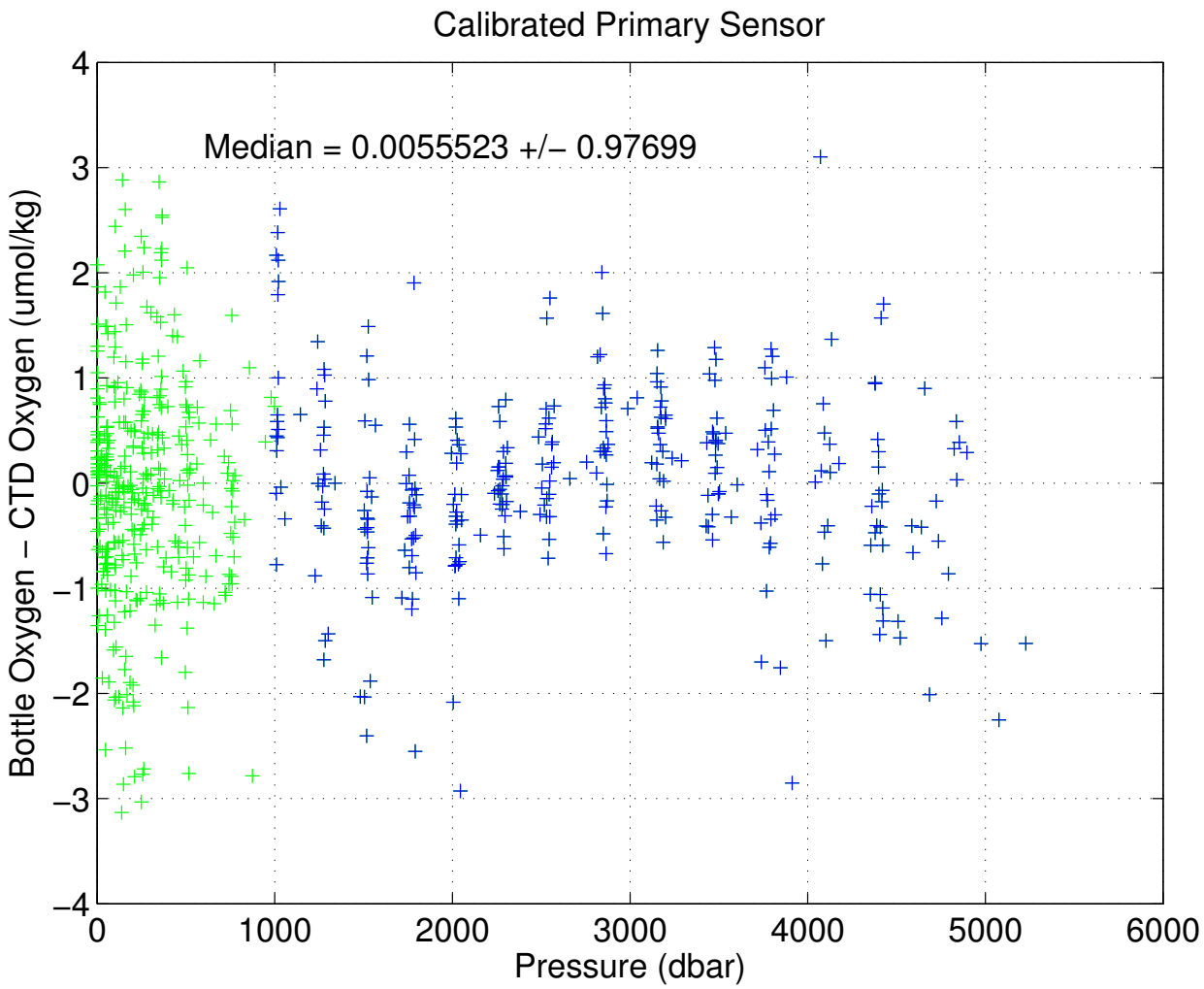

Figure 25: Bottle and calibrated primary CTD oxygen differences plotted vs. pressure.

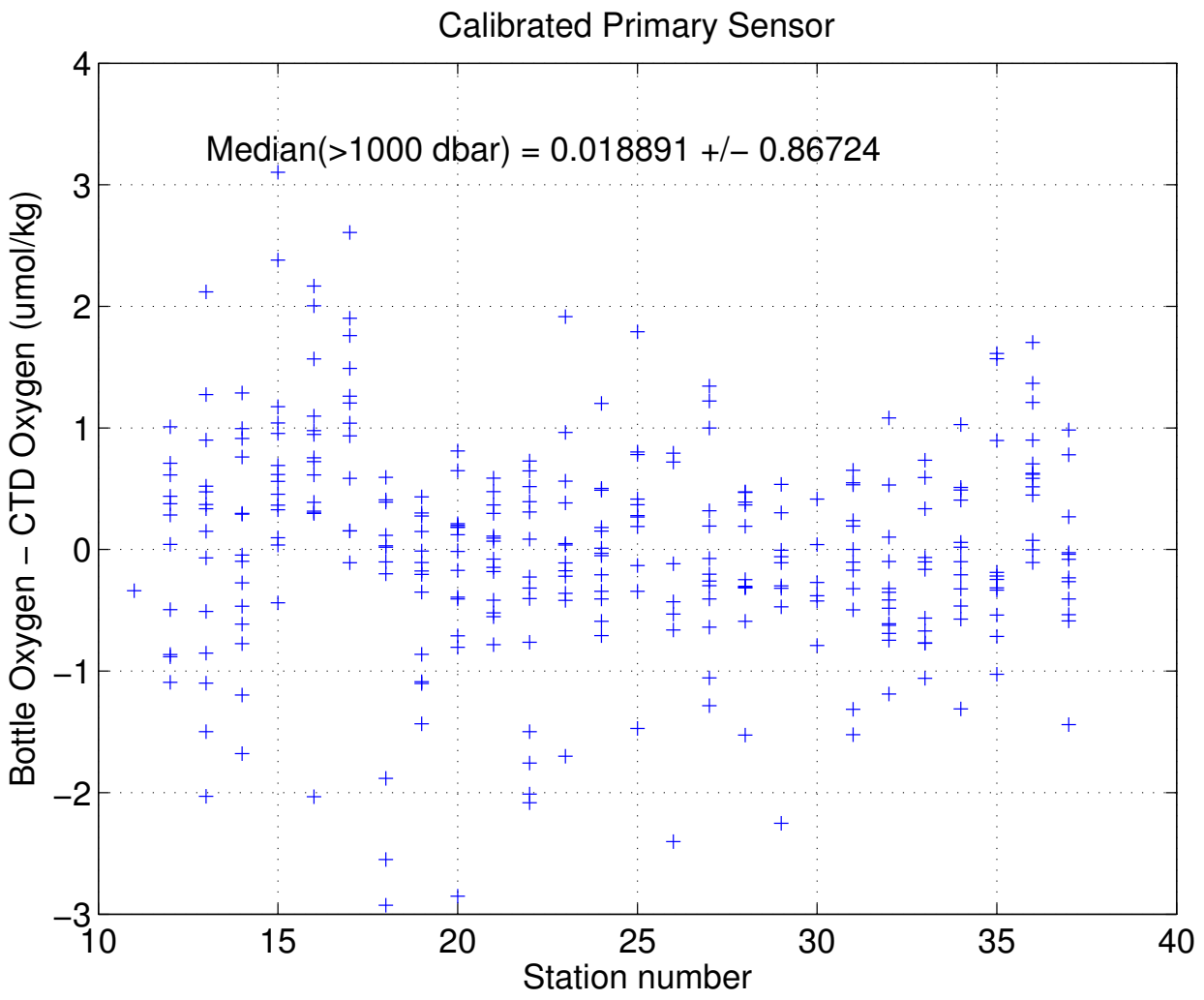

Figure 26: Bottle and calibrated primary CTD oxygen differences plotted vs. station below 1000 dbar.

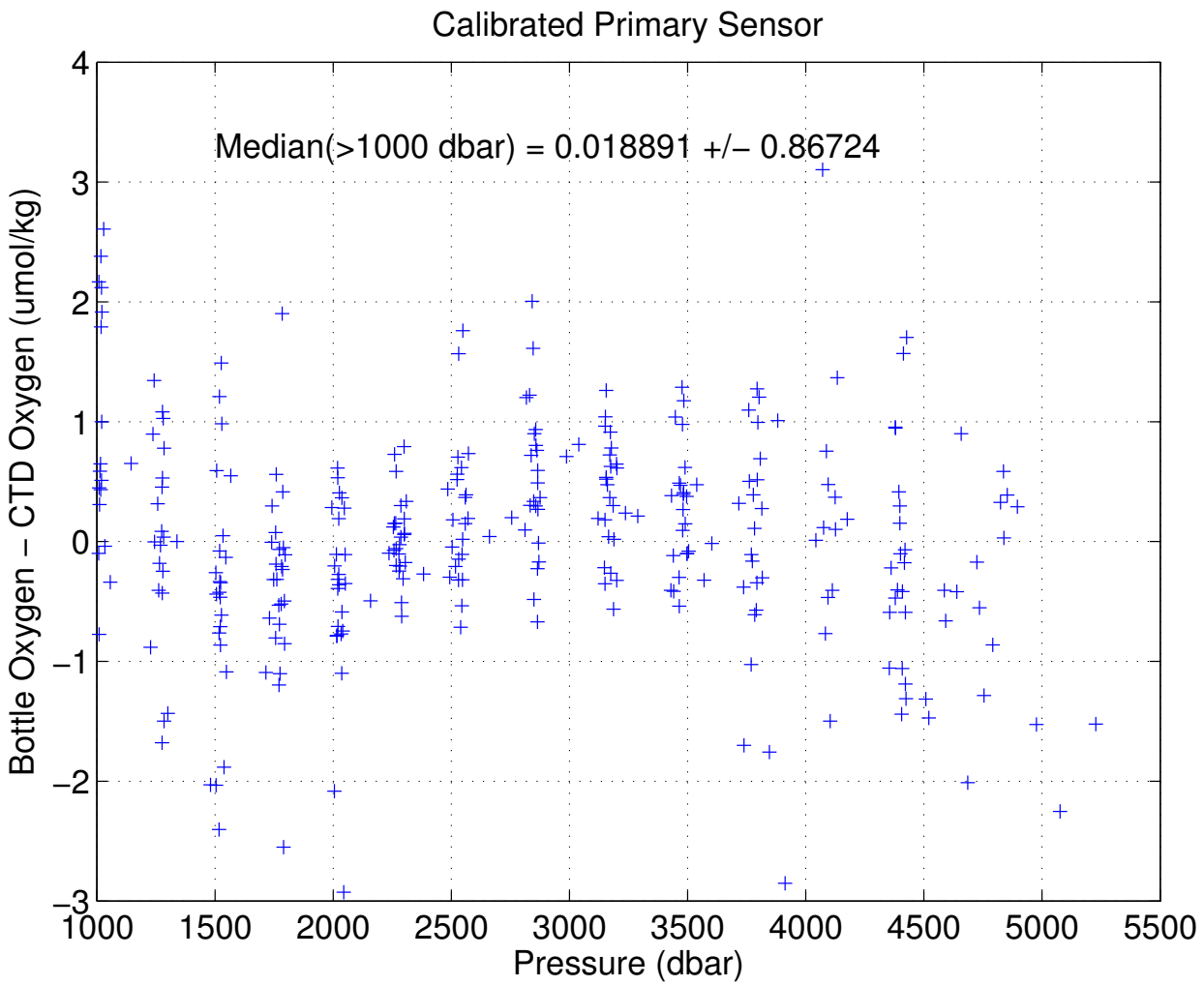

Figure 27: Bottle and calibrated primary CTD oxygen differences plotted vs. pressure below 1000 dbar.

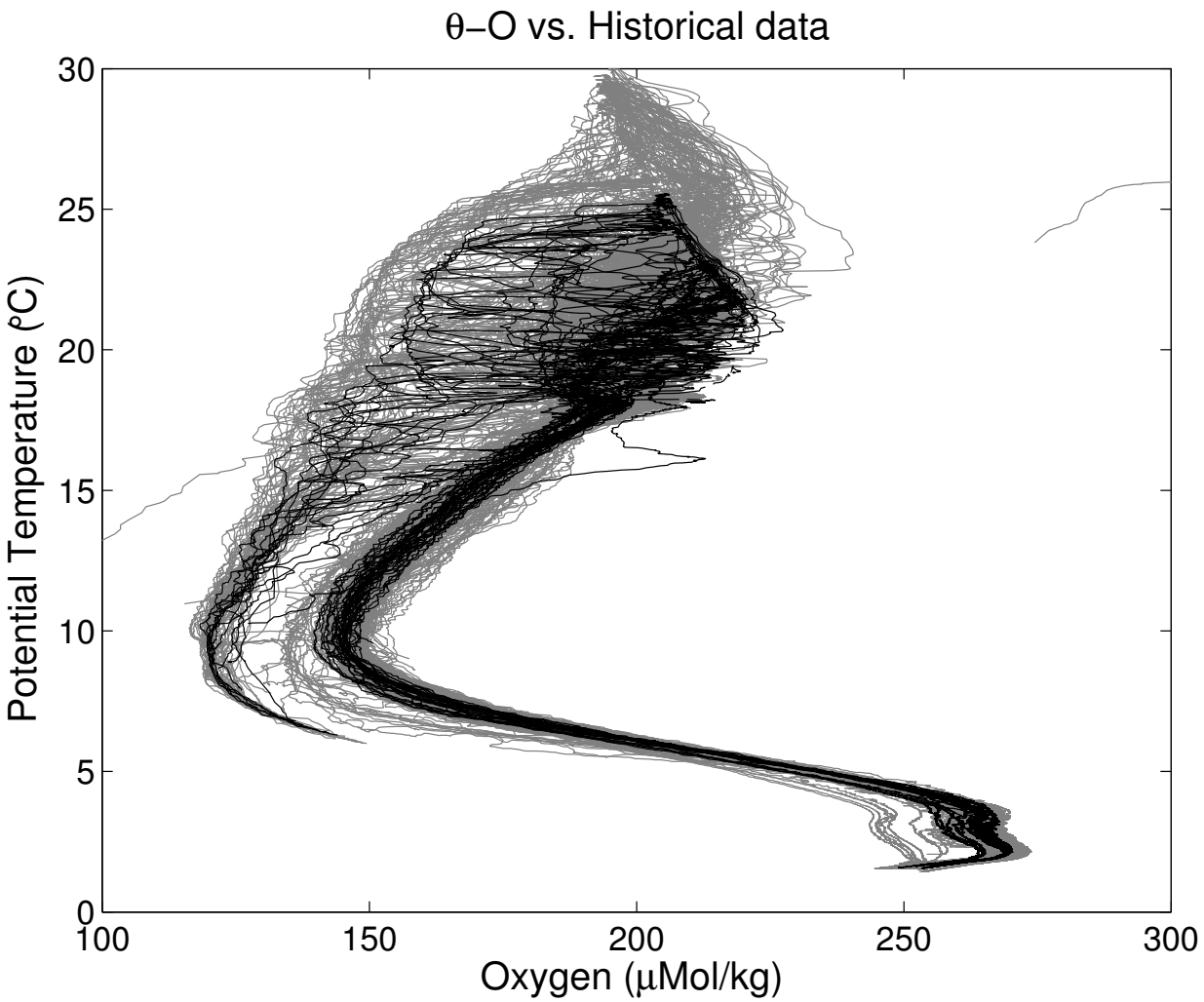

Figure 28: Potential Temperature - Oxygen diagram for all stations. The solid black lines are the data collected during this cruise; the solid gray lines are data from the historical database.

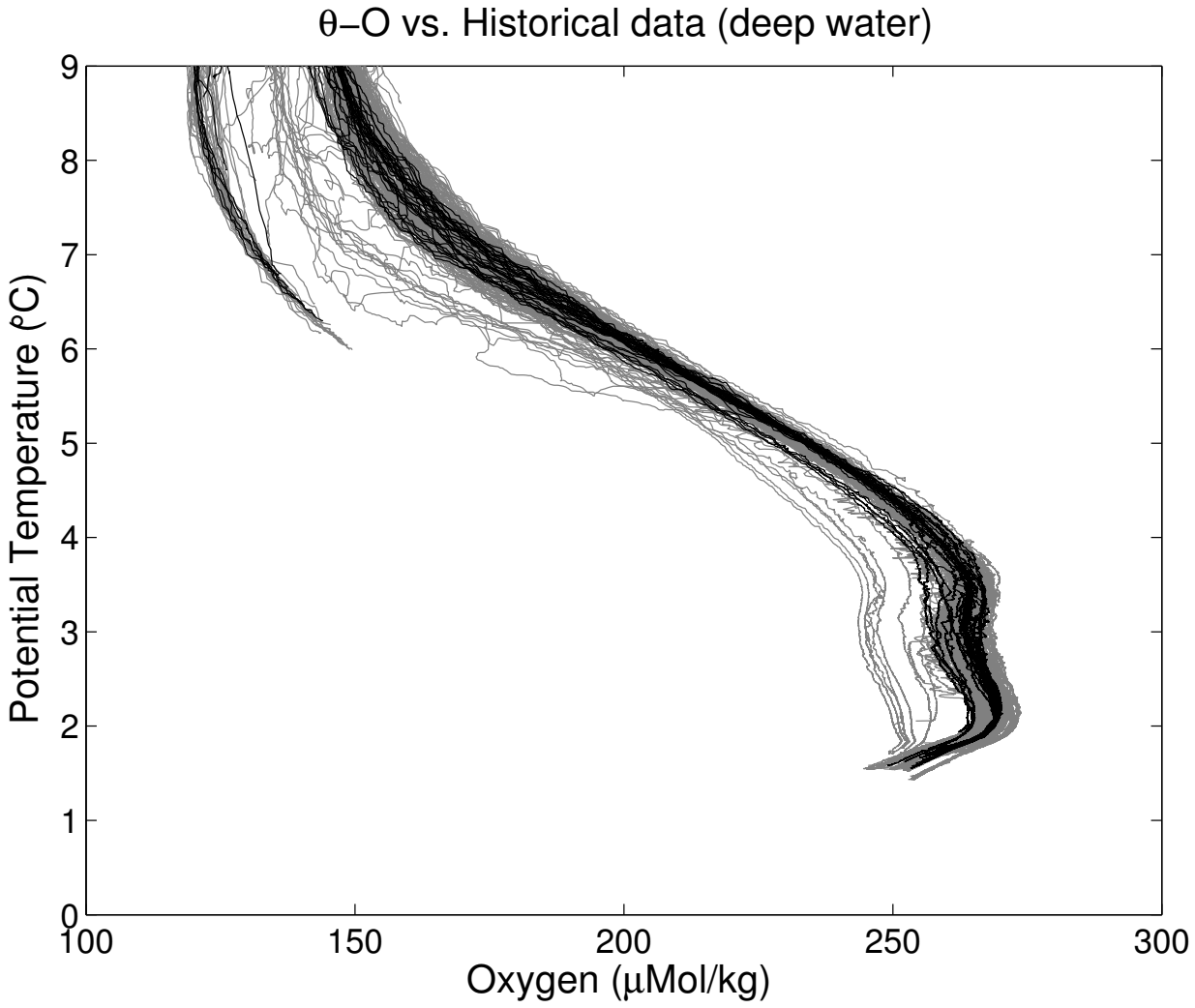

Figure 29: Potential Temperature - Oxygen diagram for all stations. The solid black lines are the data collected during this cruise; the solid gray lines are data from the historical database.

9 Final CTD Data Presentation

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

Vertical sections of potential temperature, CTD salinity, neutral density, and CTD oxygen are contoured with pressure as the vertical axis and, for Abaco sections longitude as horizontal axis (Figure 30 to Figure 33). Nominal vertical exaggerations are 400:1 below 1000 dbar (lower panels) and 200:1 above 1000 dbar (upper panels). The Florida Current Section also uses longitude as the horizontal axis (Figure 34 to Figure 37). For the Northwest Providence Channel Sections latitude is used as horizontal axis (Figure 42 to Figure 45).

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

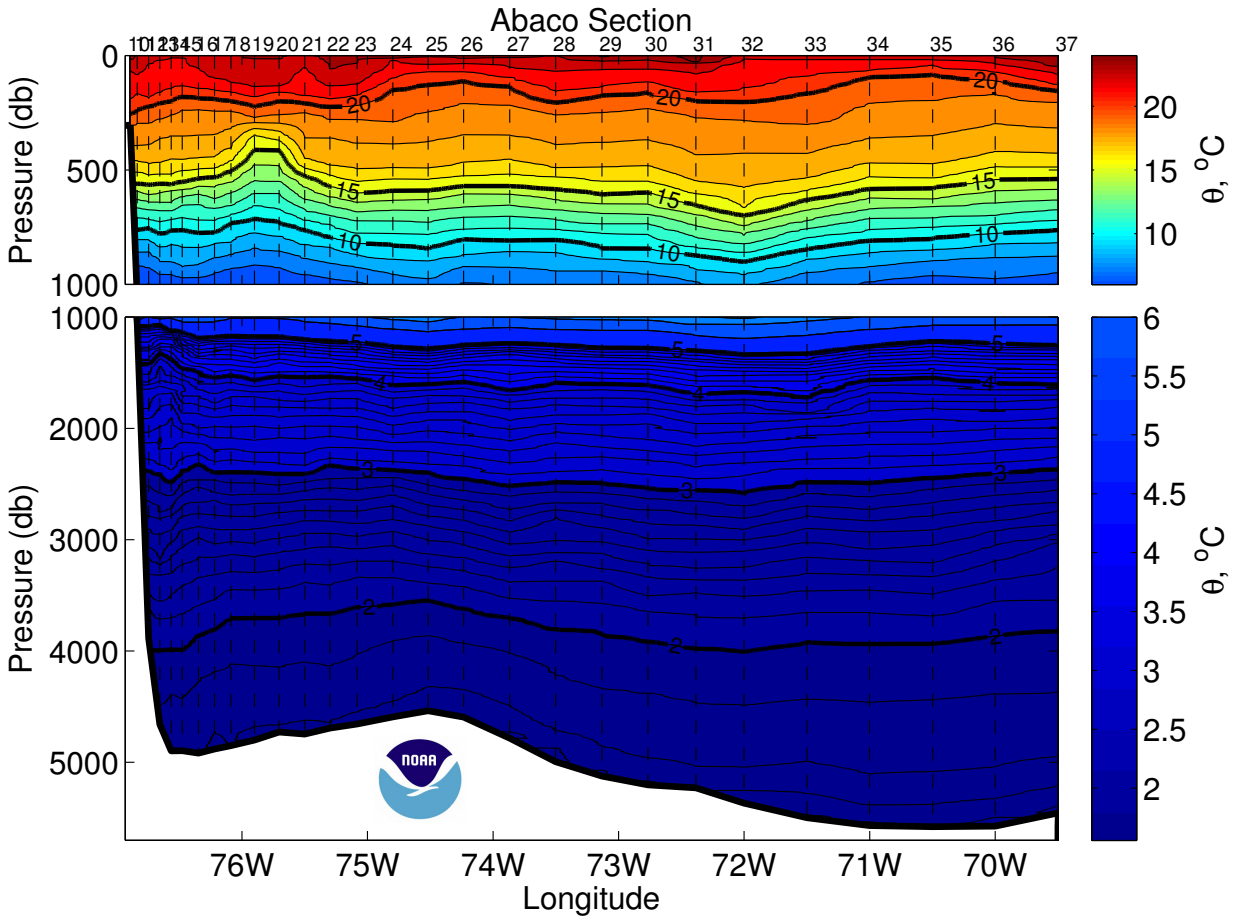

Figure 30: Potential Temperature (°C) section for the Abaco Section. Dashed vertical lines are the CTD station locations.

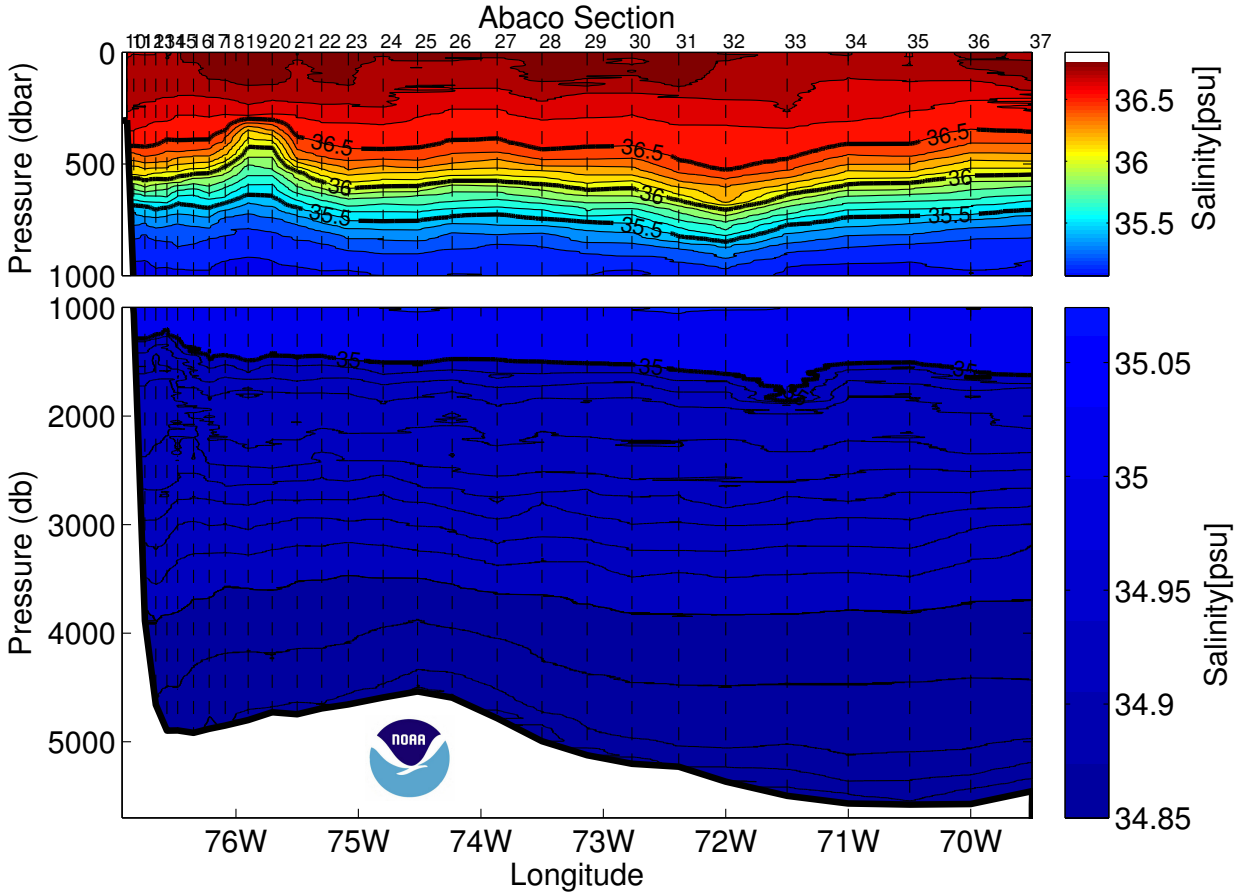

Figure 31: Salinity (PSS 78) section for the Abaco section. Dashed vertical lines are the CTD station locations.

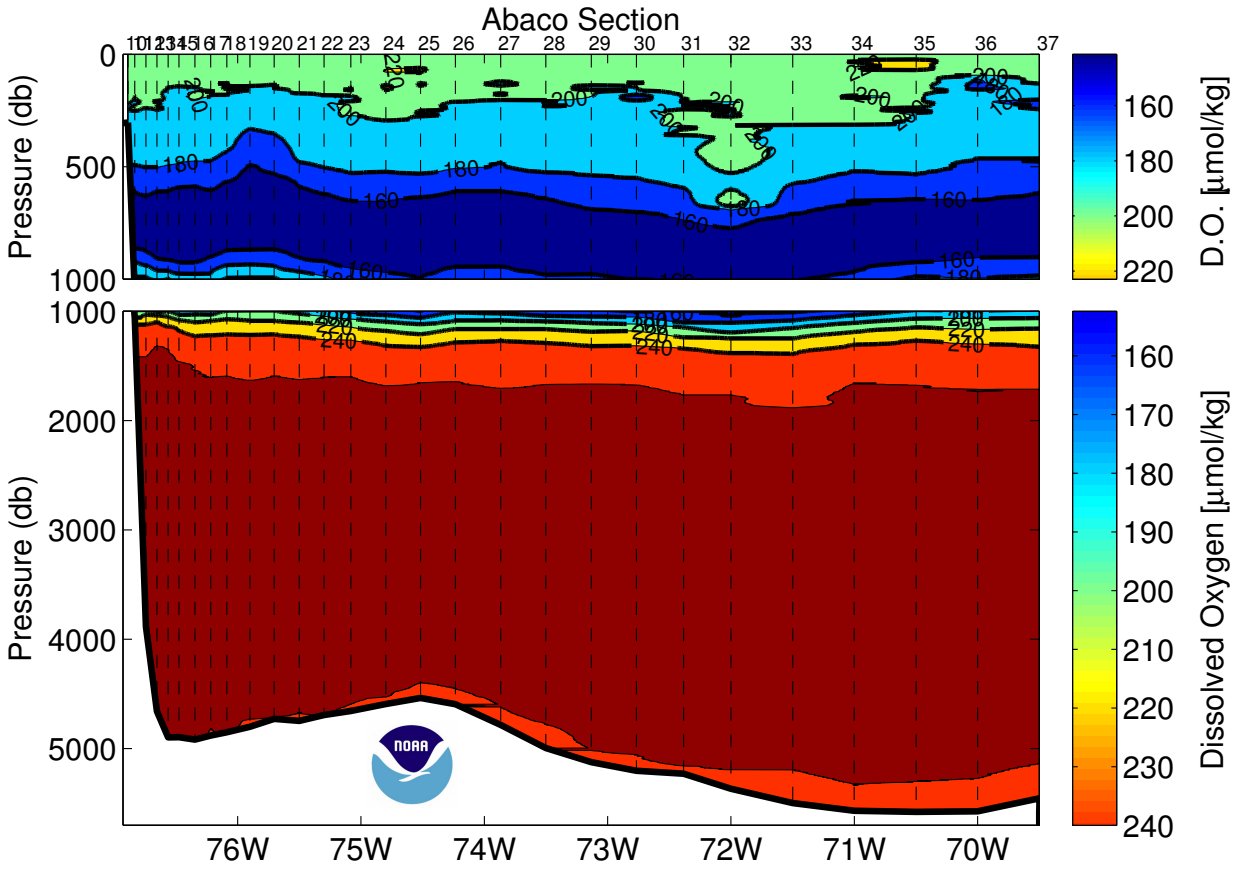

Figure 32: Dissolved Oxygen ($umol/kg$) section for the Abaco Section. Dashed vertical lines are the CTD station locations.

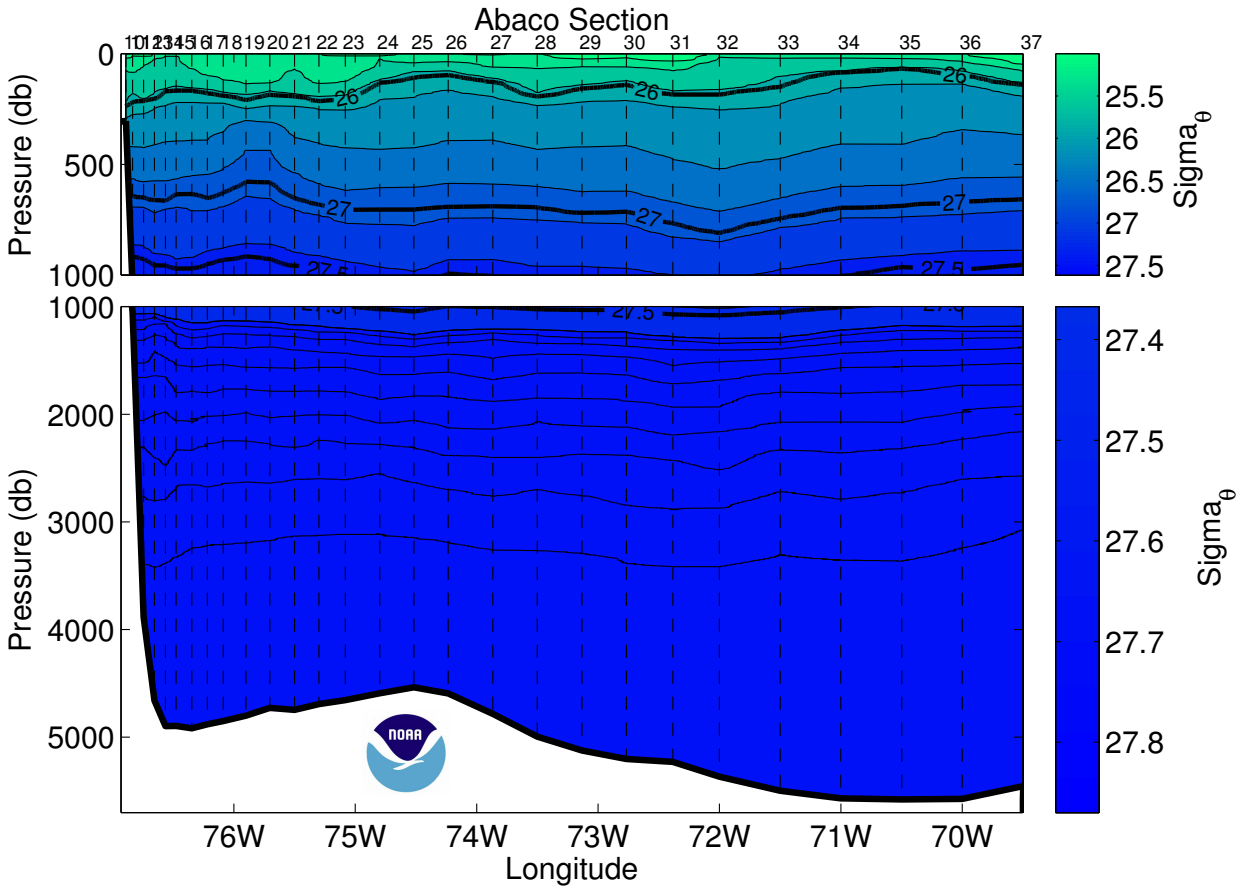

Figure 33: Neutral density (kg/m3) section for the Abaco Section. Dashed vertical lines are the CTD station locations.

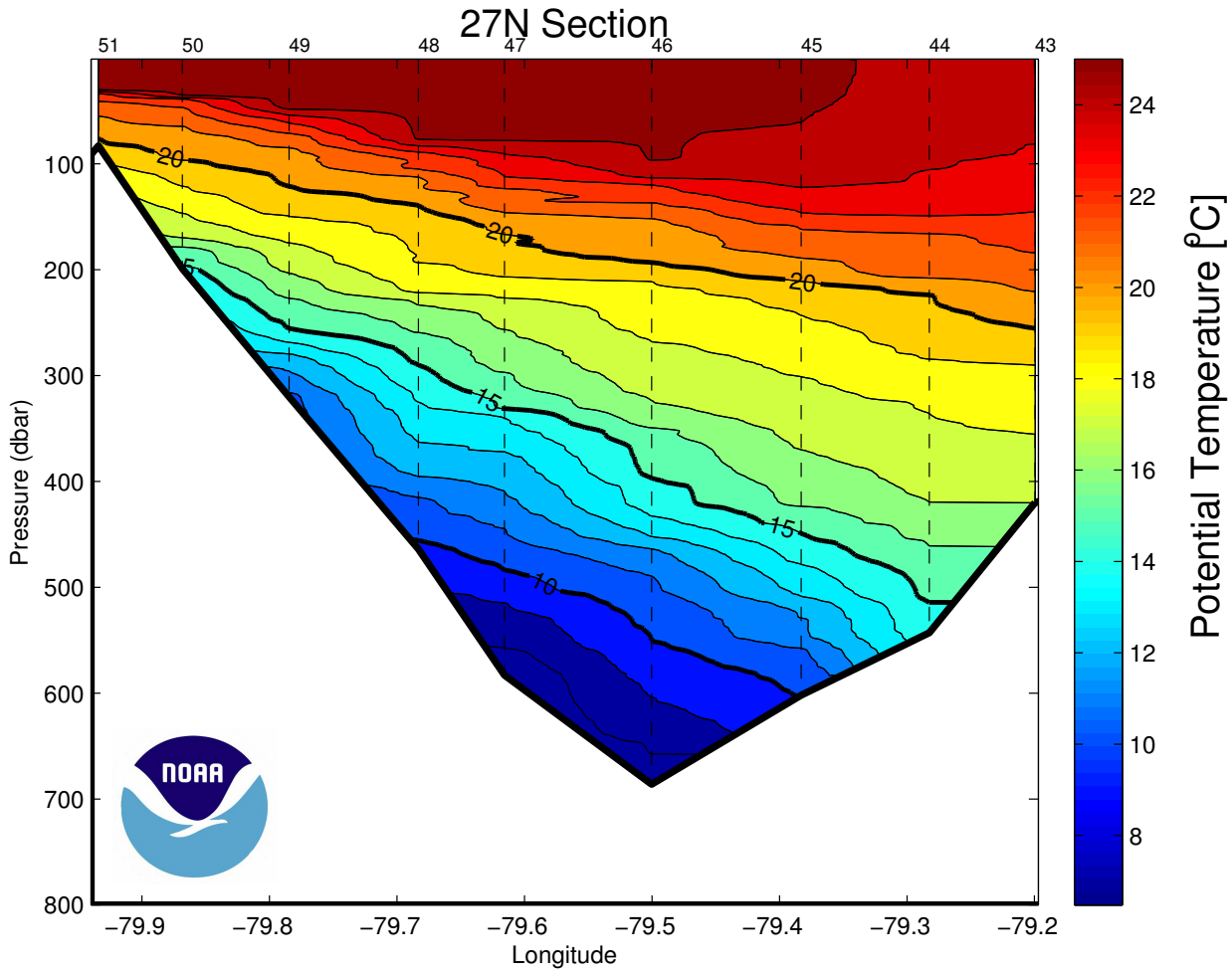

Figure 34: Potential Temperature (°C) section for the Florida Current North section. Dashed vertical lines are the CTD station locations.

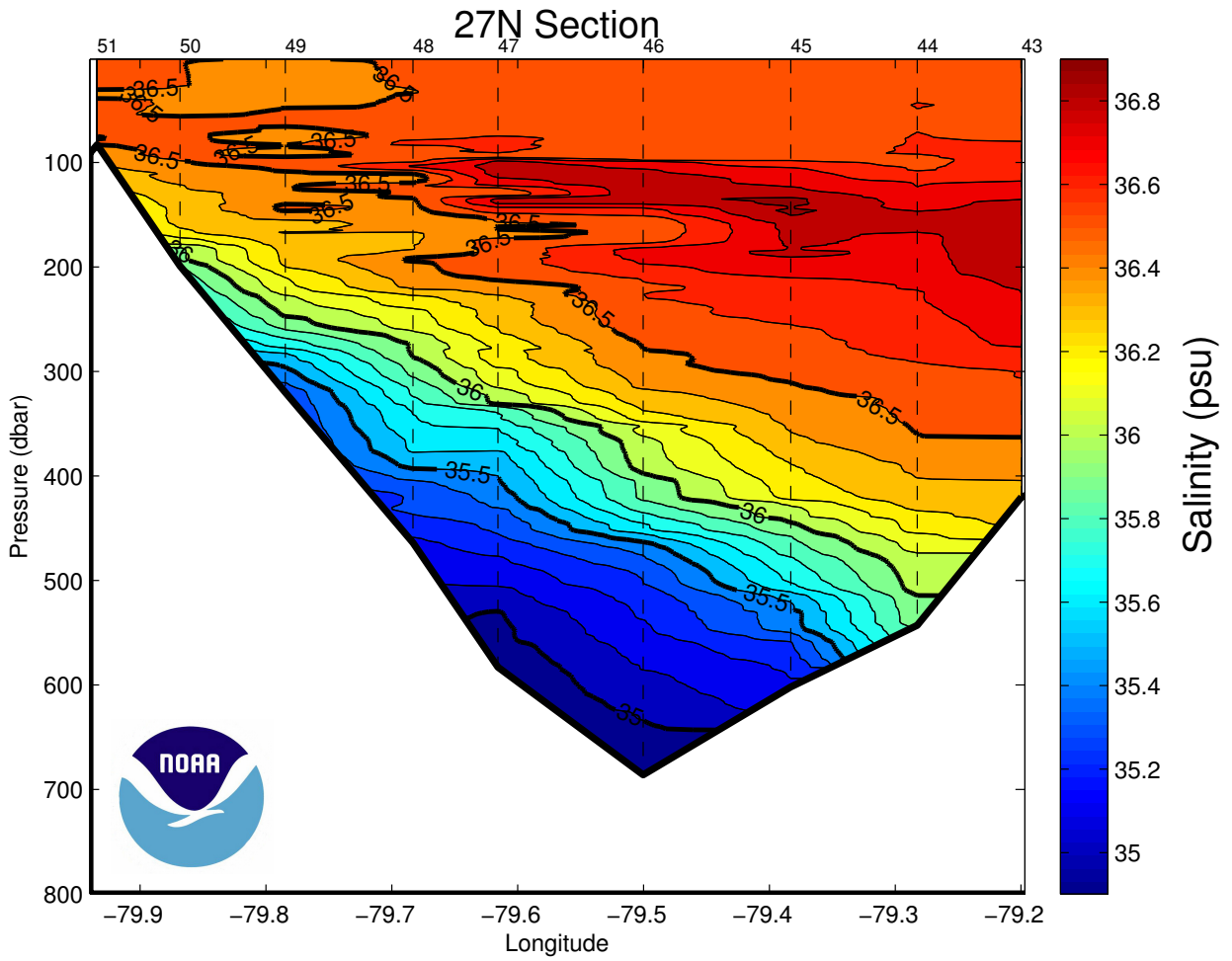

Figure 35: Salinity (PSS 78) section for the Florida Current North section. Dashed vertical lines are the CTD station locations.

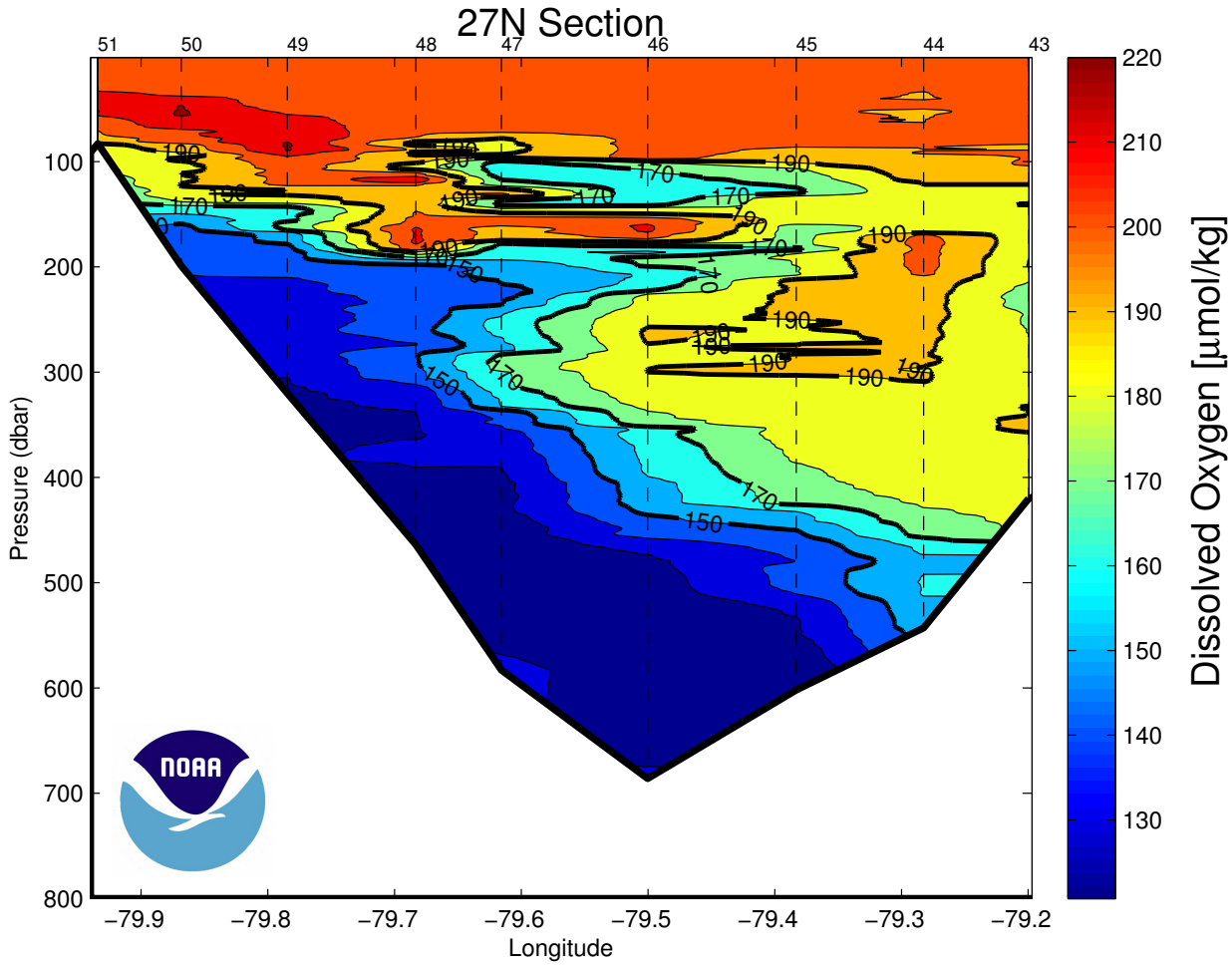

Figure 36: Dissolved Oxygen ($umol/kg$) section for the Florida Current North section. Dashed vertical lines are the CTD station locations.

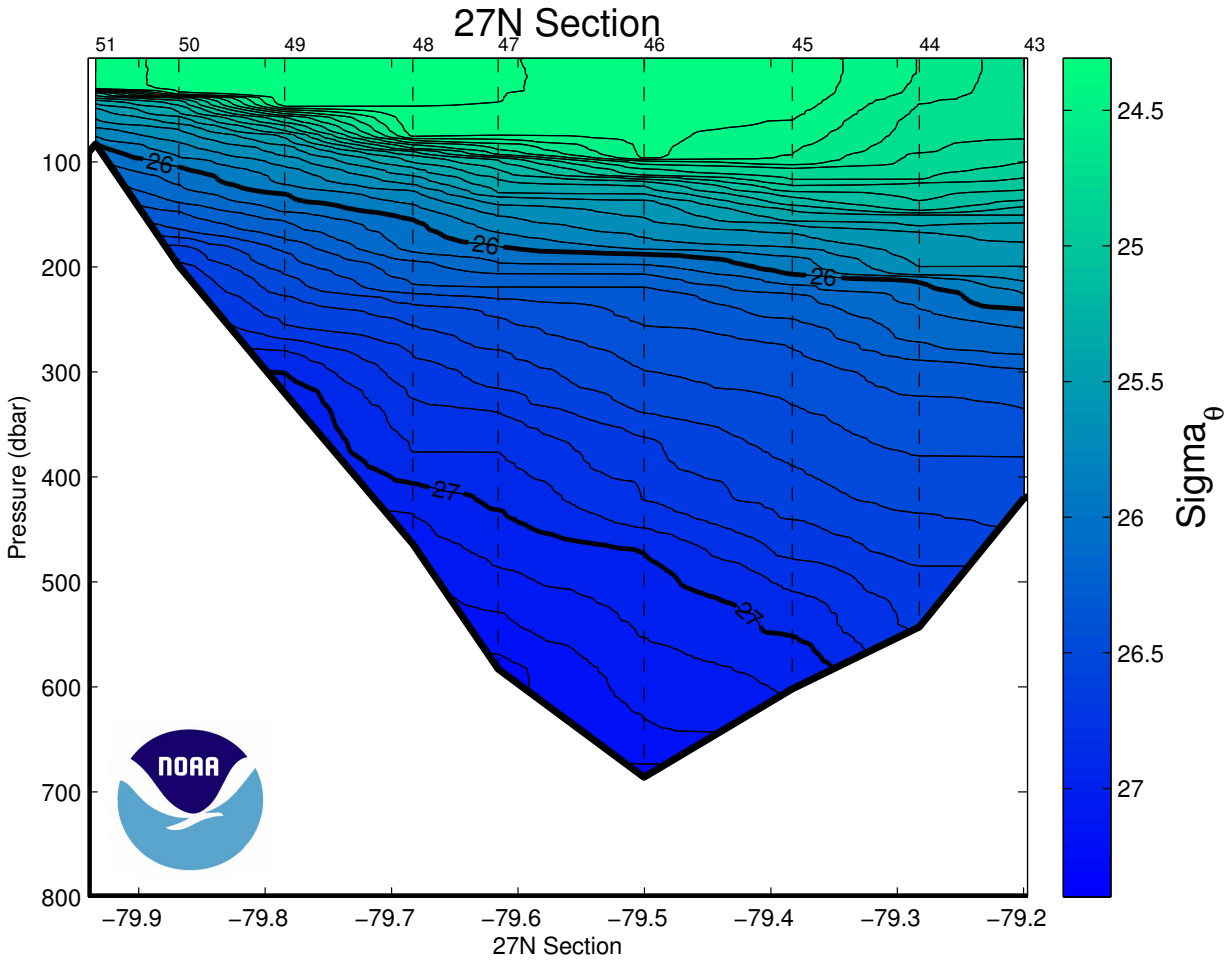

Figure 37: Neutral density (kg/m3) section for the Florida Current North section. Dashed vertical lines are the CTD station locations.

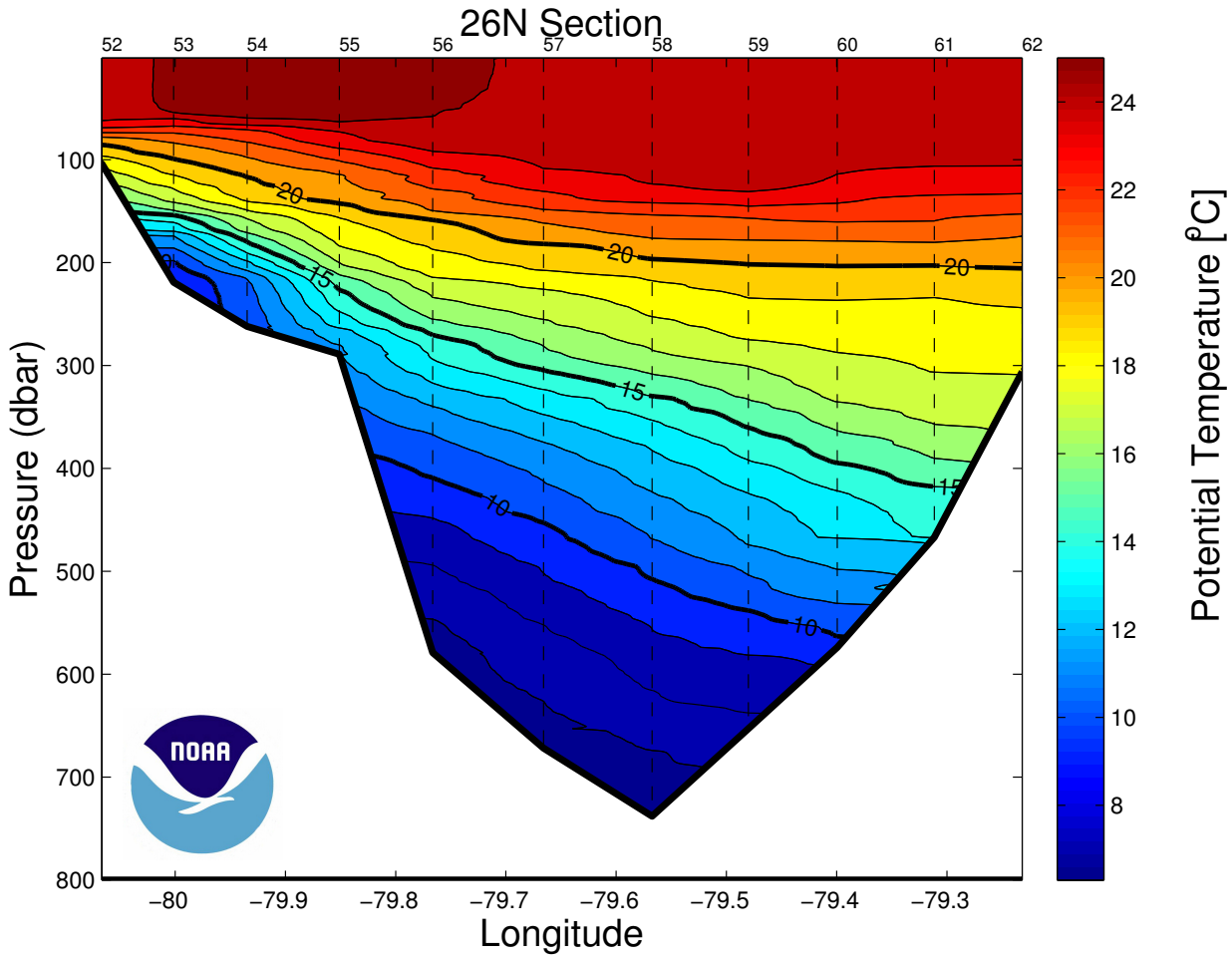

Figure 38: Potential Temperature (°C) section for the Florida Current South section. Contour intervals are 1°C. Dashed vertical lines are the CTD station locations.

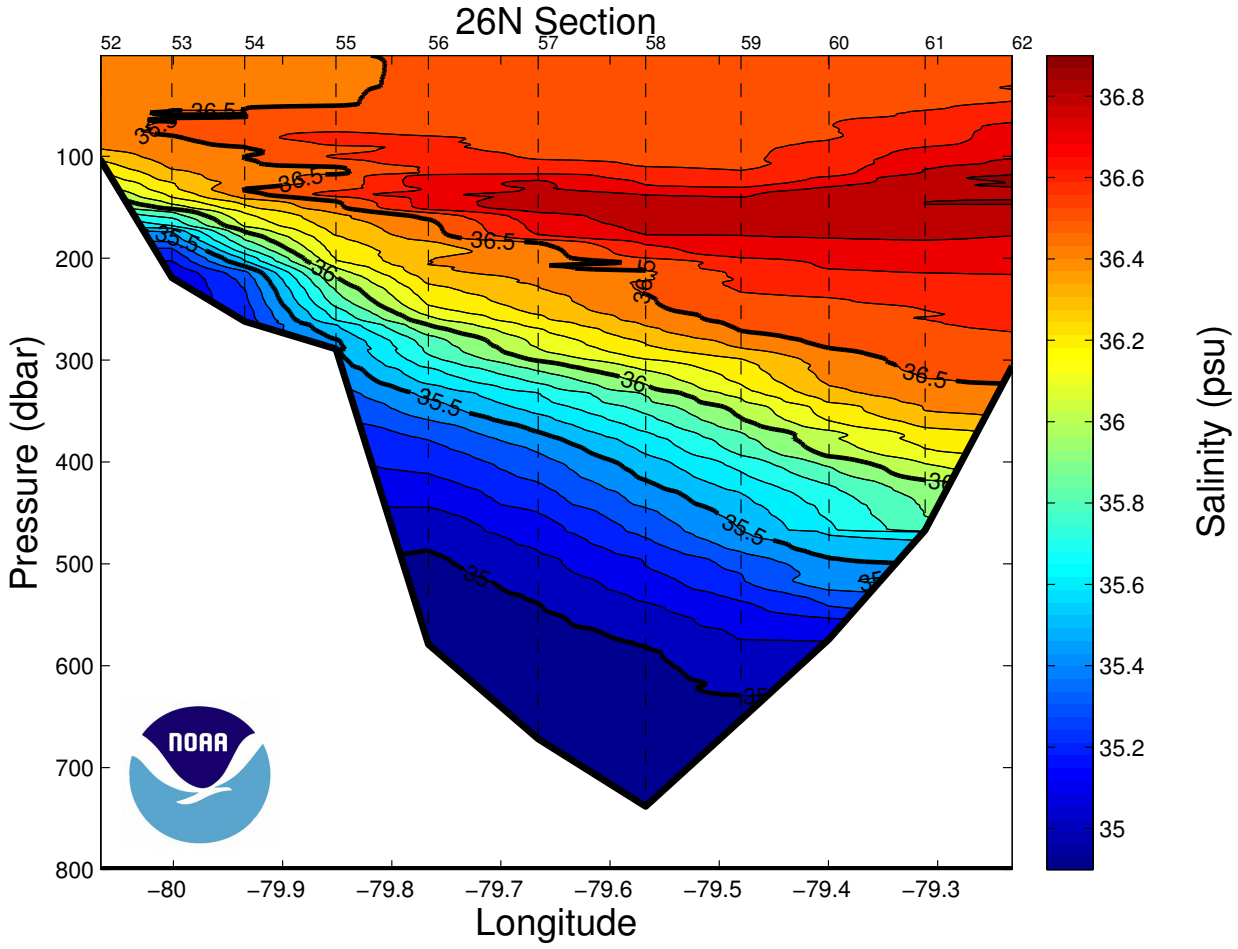

Figure 39: Salinity (PSS 78) section for the Florida Current South section. Contour intervals are 0.1. Dashed vertical lines are the CTD station locations.

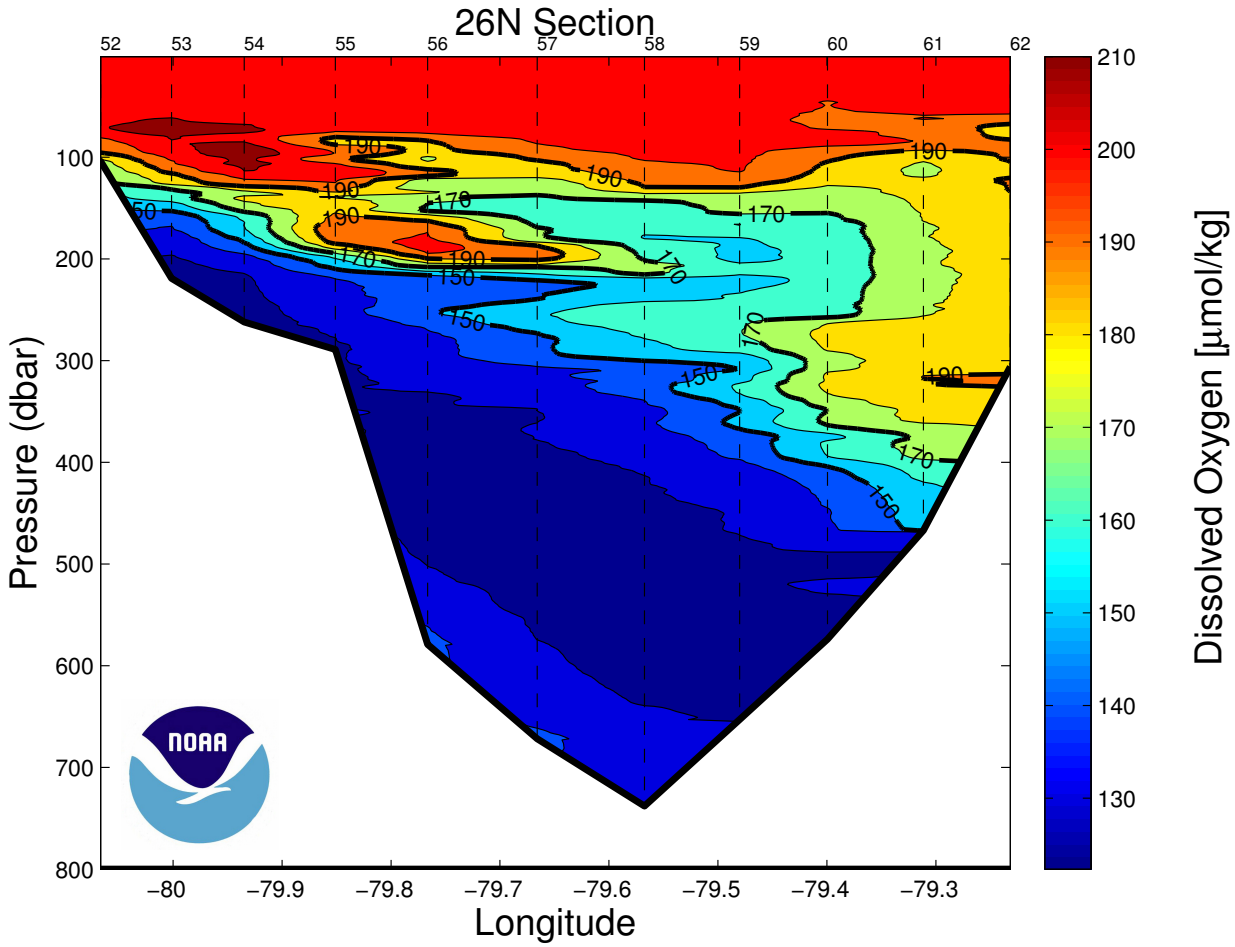

Figure 40: Dissolved Oxygen ($umol/kg$) section for the Florida Current South section. Contour intervals are ≈20 $umol/kg$. Dashed vertical lines are the CTD station locations.

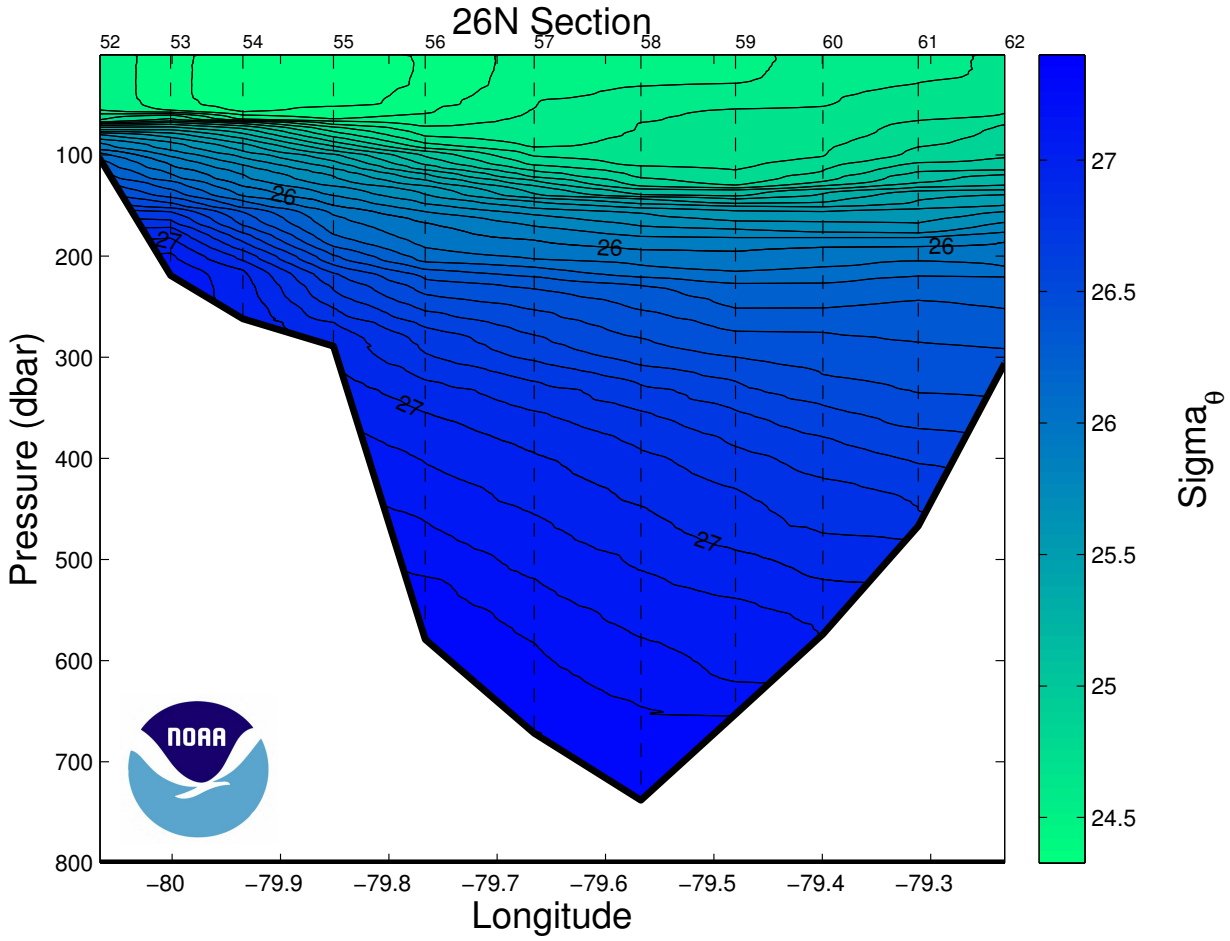

Figure 41: Neutral density (kg/m3) section for the Florida Current South section. Contour intervals are 0.1 kg/m3. Dashed vertical lines are the CTD station locations.

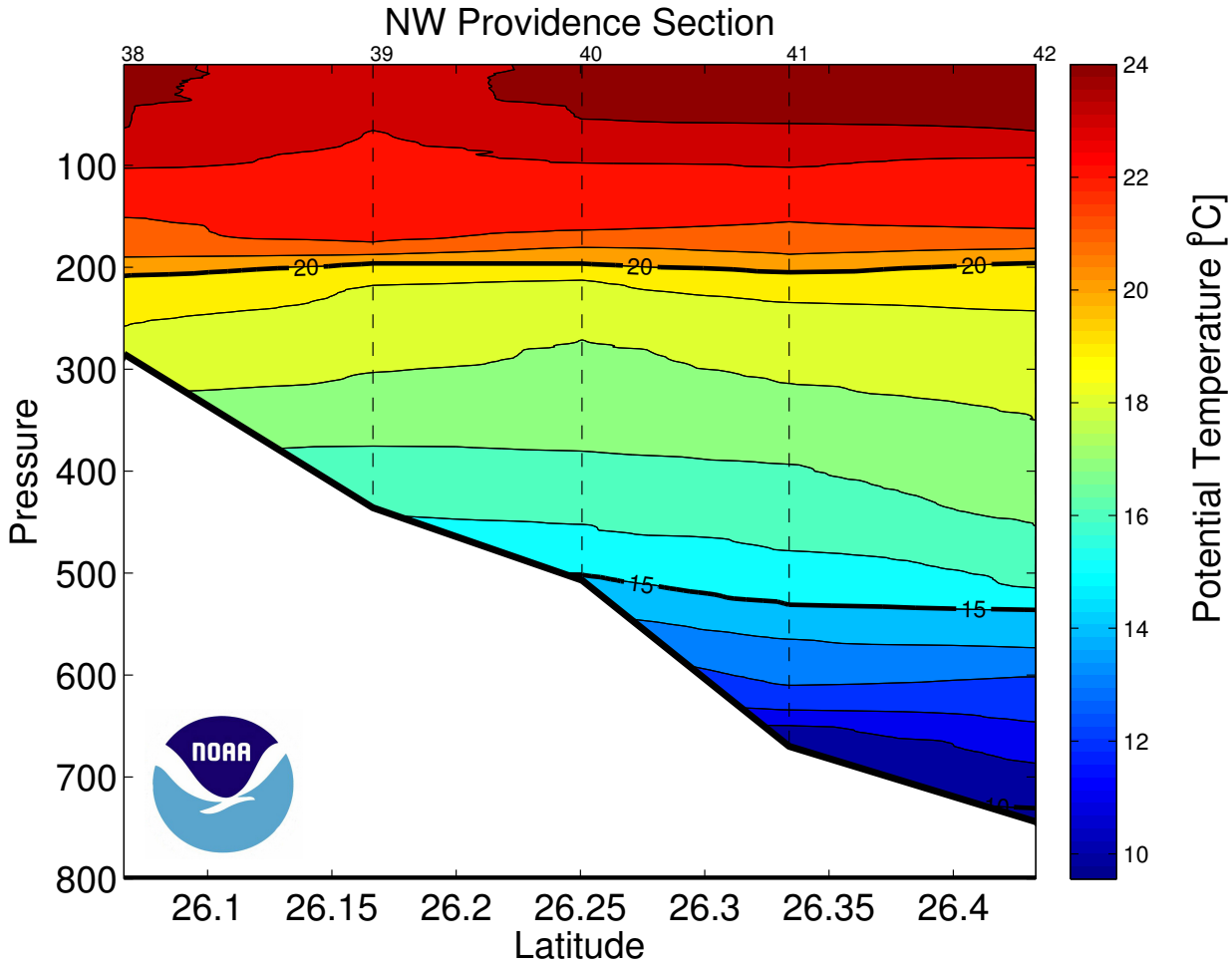

Figure 42: Potential Temperature (°C) section for the Northwest Providence Channel section. Dashed vertical lines are the CTD station locations.

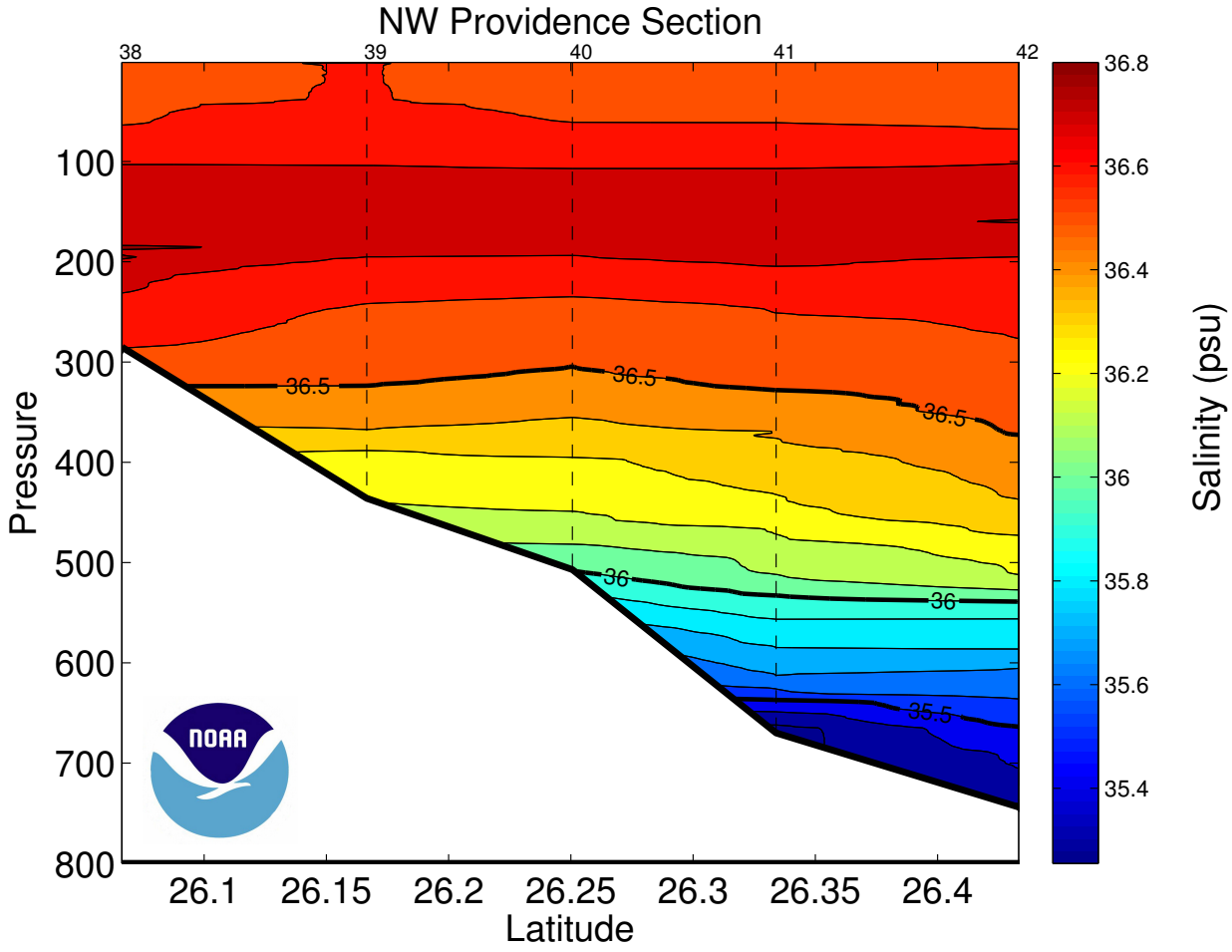

Figure 43: Salinity (PSS 78) section for the Northwest Providence Channel section. Dashed vertical lines are the CTD station locations.

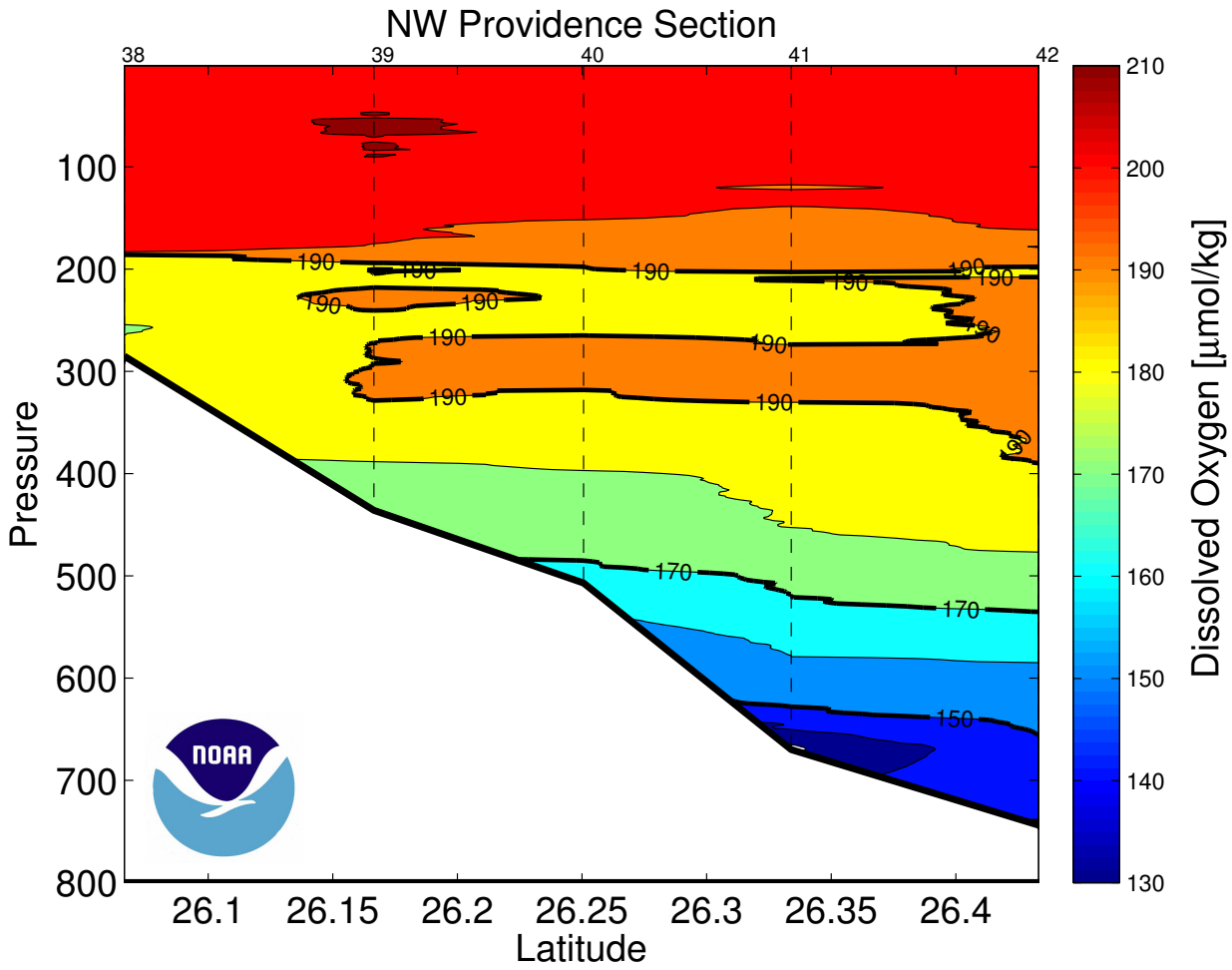

Figure 44: Dissolved Oxygen ($umol/kg$) section for the Northwest Providence Channel section. Dashed vertical lines are the CTD station locations.

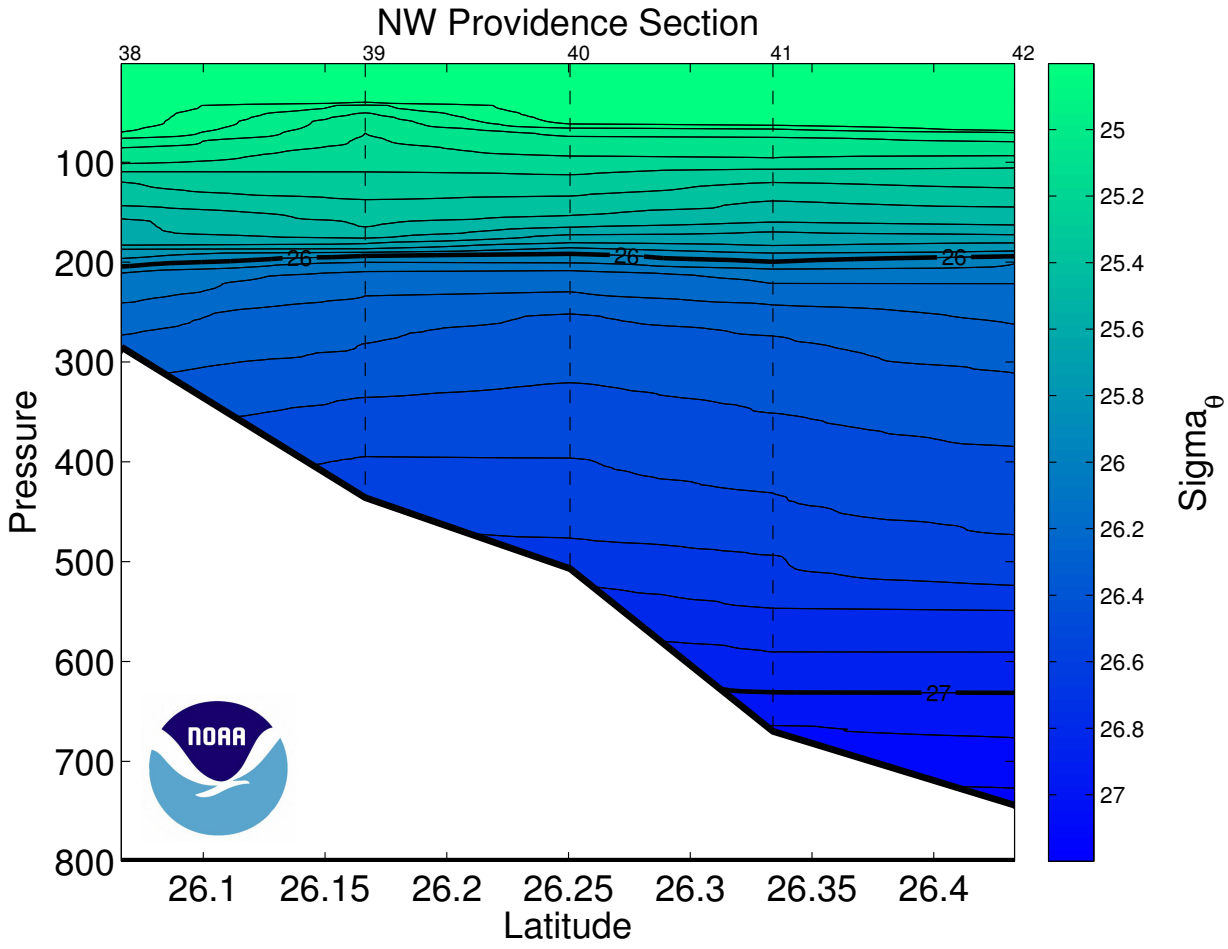

Figure 45: Neutral density (kg/m3) section for the Northwest Providence Channel section. Dashed vertical lines are the CTD station locations.

10 Acknowledgements

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

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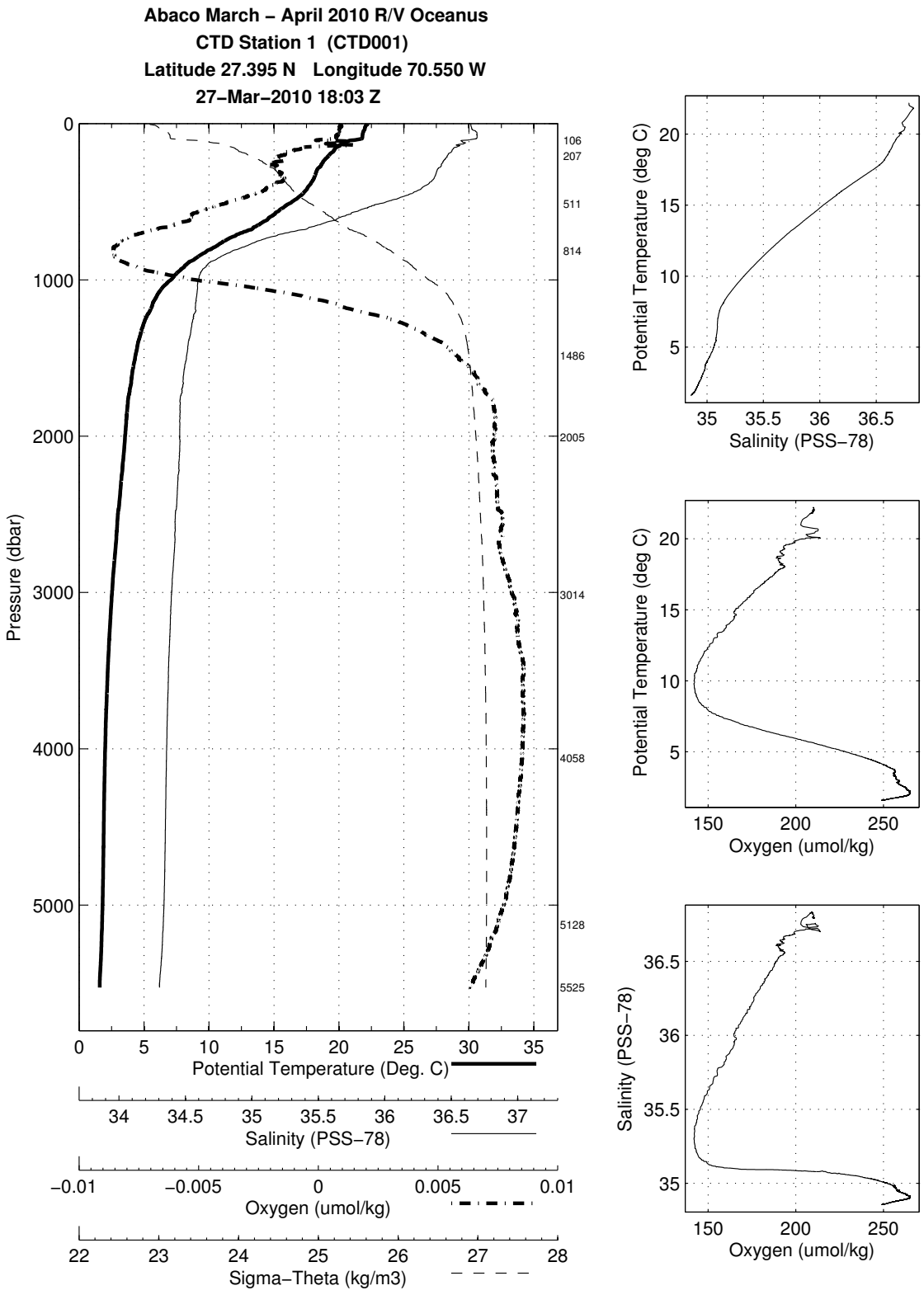
A Hydrographic - CTD Data

Abaco March - April 2010 R/V Oceanus
CTD Station 1 (CTD001)
Latitude 27.395N Longitude 70.550W
27-Mar-2010 18:03Z

Pressure	Temp90	PoTemp90	Salinity	Oxygen	DynHt	SigT
dbar	°C	°C	PSS-78	μmol·kg^{-1}	m^2·s^{-2}	kg·m^{-3}
1	22.203	22.203	36.777	0.0	0.002	25.512
10	22.084	22.082	36.777	0.0	0.025	25.545
20	22.024	22.020	36.779	0.0	0.049	25.565
30	21.999	21.993	36.782	0.0	0.073	25.575
50	21.906	21.896	36.806	0.0	0.121	25.620
75	21.828	21.813	36.815	0.0	0.180	25.651
100	21.608	21.588	36.791	0.0	0.239	25.695
125	20.399	20.375	36.738	0.0	0.293	25.988
150	19.893	19.865	36.688	0.0	0.344	26.086
200	19.314	19.278	36.636	0.0	0.440	26.200
250	18.811	18.766	36.603	0.0	0.532	26.307
300	18.352	18.299	36.568	0.0	0.621	26.399
400	17.736	17.667	36.489	0.0	0.792	26.495
500	16.473	16.391	36.254	0.0	0.956	26.622
600	14.750	14.658	35.968	0.0	1.107	26.794
700	12.538	12.441	35.627	0.0	1.243	26.991
800	10.300	10.202	35.341	0.0	1.359	27.183
900	8.377	8.279	35.147	0.0	1.457	27.347
1000	7.168	7.068	35.089	0.0	1.540	27.480
1100	6.104	6.002	35.080	0.0	1.609	27.615
1200	5.553	5.446	35.075	0.0	1.669	27.681
1300	5.018	4.906	35.049	0.0	1.723	27.725
1400	4.657	4.538	35.028	0.0	1.774	27.750
1500	4.439	4.314	35.016	0.0	1.824	27.766
1750	3.940	3.798	34.978	0.0	1.945	27.790
2000	3.703	3.539	34.974	0.0	2.062	27.813
2500	3.192	2.989	34.947	0.0	2.292	27.844
3000	2.789	2.543	34.924	0.0	2.514	27.866
3500	2.502	2.209	34.904	0.0	2.732	27.878
4000	2.354	2.010	34.893	0.0	2.951	27.885
4500	2.304	1.902	34.885	0.0	3.177	27.887
5000	2.272	1.810	34.876	0.0	3.414	27.887
5500	2.107	1.587	34.848	0.0	3.659	27.882

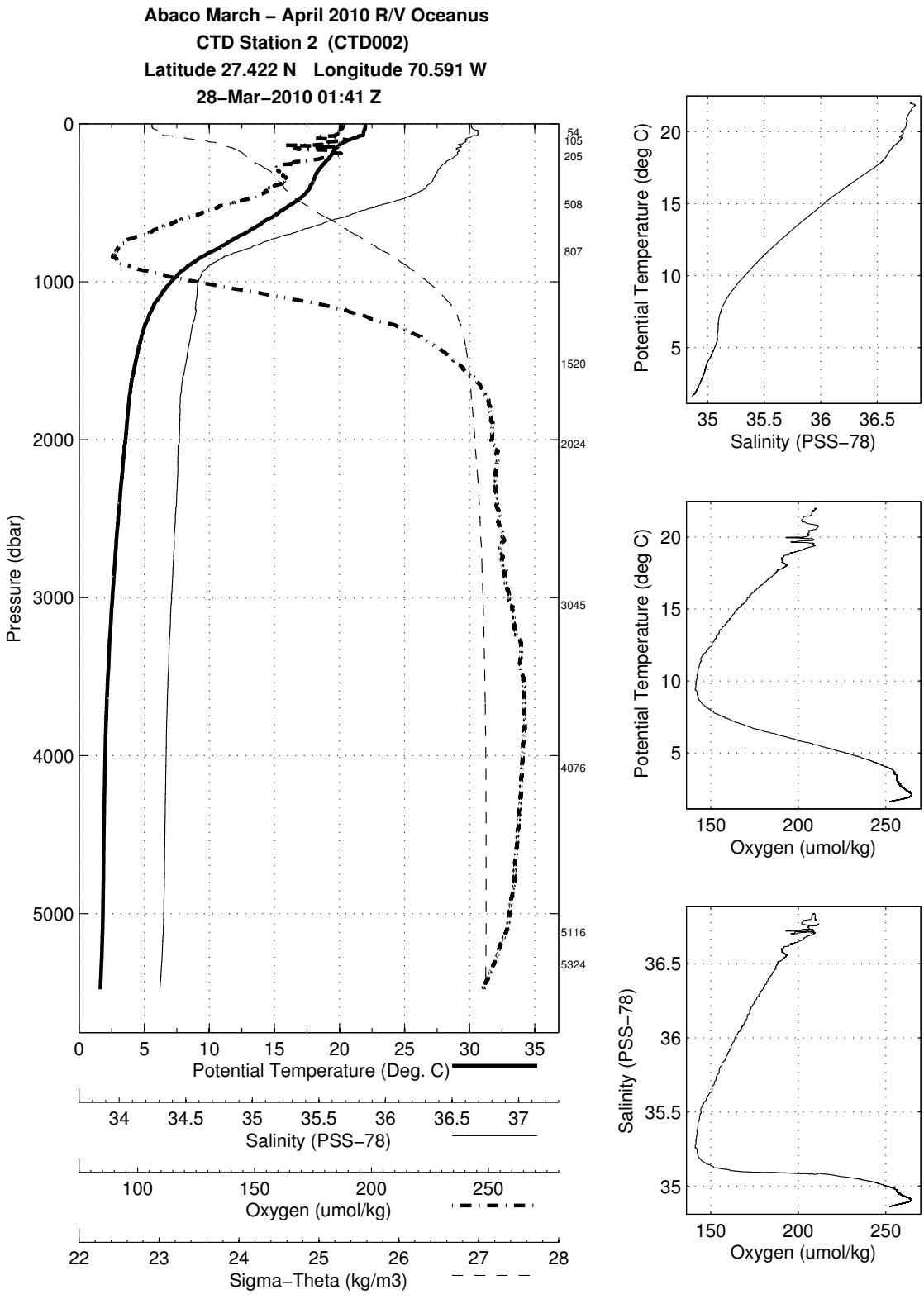
Pressure	Niskin	Temp90	PoTemp90	Salinity	Oxygen
dbar		°C	°C	PSS-78	μmol·kg^{-1}
5526	2	2.110	1.587	34.848	NaN
5128	4	2.249	1.772	34.870	NaN
4058	6	2.334	1.984	34.894	NaN
3014	8	2.773	2.526	34.927	NaN
2005	10	3.698	3.534	34.974	NaN
1486	12	4.492	4.368	35.019	NaN
814	14	9.917	9.820	35.302	NaN
512	16	16.391	16.307	36.243	NaN
208	18	19.349	19.312	36.670	NaN
107	20	20.640	20.620	36.728	NaN


Abaco March – April 2010 R/V Oceanus
CTD Station 1 (CTD001)
Latitude 27.395 N Longitude 70.550 W
27–Mar–2010 18:03 Z
Pressure (dbar)
0
1000
2000
3000
4000
5000
106
207
511
814
1486
2005
3014
4058
5128
5525
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)
–0.01 –0.005 0 0.005 0.01
Oxygen (umol/kg)
22 23 24 25 26 27 28
Sigma–Theta (kg/m3)
Potential Temperature (deg C)
5 10 15 20
35 35.5 36 36.5
Salinity (PSS–78)
Potential Temperature (deg C)
5 10 15 20
150 200 250
Oxygen (umol/kg)
Salinity (PSS–78)
35 35.5 36 36.5
150 200 250
Oxygen (umol/kg)

Abaco March - April 2010 R/V Oceanus
CTD Station 2 (CTD002)
Latitude 27.422N Longitude 70.591W
28-Mar-2010 01:41Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	21.981	21.981	36.780	210.1	0.002	25.577
10	21.985	21.983	36.780	210.2	0.024	25.576
20	21.991	21.987	36.779	209.9	0.048	25.574
30	21.975	21.969	36.786	209.9	0.072	25.585
50	21.869	21.859	36.819	209.0	0.120	25.641
75	21.745	21.730	36.805	207.7	0.179	25.667
100	20.843	20.824	36.748	211.0	0.235	25.873
125	20.201	20.178	36.725	206.3	0.287	26.031
150	19.802	19.774	36.704	208.5	0.336	26.122
200	19.402	19.366	36.687	208.7	0.431	26.216
250	18.879	18.834	36.614	193.9	0.523	26.298
300	18.381	18.328	36.569	190.9	0.612	26.392
400	17.807	17.737	36.500	188.8	0.783	26.487
500	16.538	16.456	36.266	177.4	0.948	26.616
600	14.678	14.587	35.952	162.6	1.100	26.797
700	12.733	12.635	35.655	150.6	1.235	26.974
800	10.516	10.417	35.366	142.1	1.353	27.165
900	8.445	8.347	35.154	145.8	1.452	27.342
1000	7.171	7.071	35.091	166.2	1.535	27.481
1100	6.244	6.140	35.082	192.3	1.606	27.599
1200	5.536	5.428	35.075	213.8	1.666	27.684
1300	5.065	4.952	35.051	228.8	1.721	27.721
1400	4.739	4.620	35.034	237.4	1.773	27.746
1500	4.478	4.352	35.018	243.5	1.823	27.763
1750	3.978	3.835	34.981	254.0	1.944	27.788
2000	3.725	3.562	34.976	254.8	2.063	27.812
2500	3.195	2.992	34.950	257.1	2.292	27.846
3000	2.804	2.558	34.927	260.2	2.513	27.867
3500	2.497	2.205	34.904	264.3	2.732	27.878
4000	2.340	1.996	34.892	264.2	2.950	27.886
4500	2.297	1.896	34.884	262.7	3.176	27.887
5000	2.284	1.822	34.877	260.2	3.413	27.887

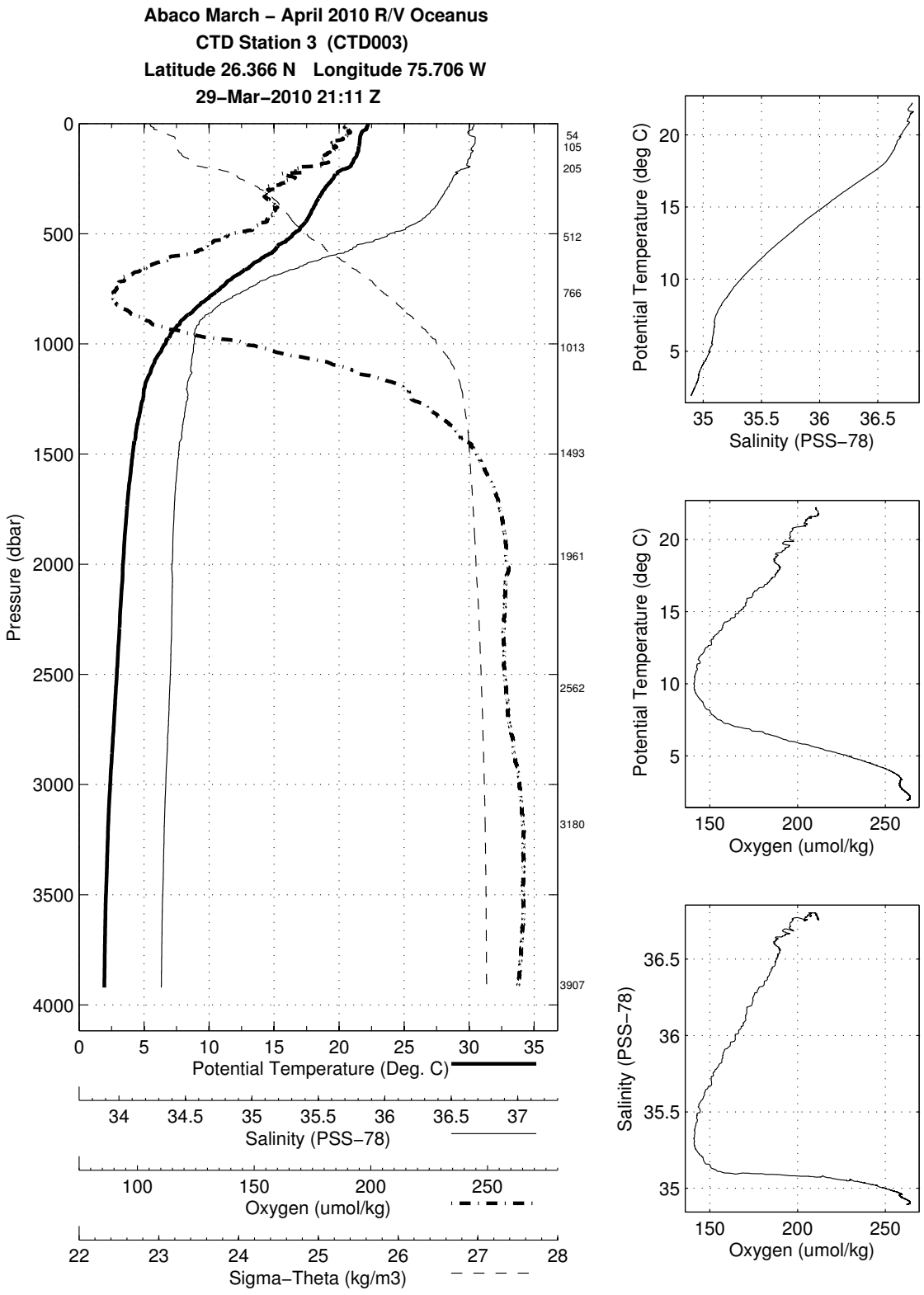
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
5325	2	2.205	1.705	34.863	NaN
5116	4	2.273	1.797	34.874	NaN
4077	6	2.329	1.977	34.893	NaN
3045	8	2.760	2.509	34.921	NaN
2025	10	3.636	3.472	34.965	NaN
1520	12	4.456	4.328	35.014	NaN
807	14	10.195	10.097	35.260	NaN
508	16	16.861	16.776	36.323	NaN
206	18	19.488	19.450	36.687	NaN
105	20	20.186	20.166	36.695	NaN
55	22	21.833	21.823	36.816	NaN


Abaco March – April 2010 R/V Oceanus
CTD Station 2 (CTD002)
Latitude 27.422 N Longitude 70.591 W
28–Mar–2010 01:41 Z
Pressure (dbar)
0
1000
2000
3000
4000
5000
54
105
205
508
807
1520
2024
3045
4076
5116
5324
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
35 35.5 36 36.5
Salinity (PSS–78)
Potential Temperature (deg C)
5 10 15 20
150 200 250
Oxygen (umol/kg)
Salinity (PSS–78)
35 35.5 36 36.5
150 200 250
Oxygen (umol/kg)

Abaco March - April 2010 R/V Oceanus
CTD Station 3 (CTD003)
Latitude 26.366N Longitude 75.706W
29-Mar-2010 21:11Z

Pressure	Temp90	PoTemp90	Salinity	Oxygen	DynHt	SigT
dbar	°C	°C	PSS-78	μmol·kg^{-1}	m^2·s^{-2}	kg·m^{-3}
1	22.211	22.211	36.782	210.6	0.002	25.513
10	22.193	22.191	36.780	210.4	0.025	25.517
20	22.098	22.094	36.773	210.6	0.049	25.539
30	21.957	21.951	36.759	211.8	0.074	25.569
50	21.681	21.671	36.752	211.9	0.121	25.642
75	21.601	21.586	36.788	208.9	0.179	25.693
100	21.562	21.543	36.779	207.4	0.237	25.699
125	21.505	21.480	36.775	205.8	0.296	25.713
150	21.339	21.310	36.759	204.9	0.353	25.749
200	20.775	20.737	36.748	197.3	0.466	25.898
250	19.586	19.540	36.651	195.0	0.567	26.143
300	18.892	18.838	36.614	187.5	0.662	26.298
400	17.922	17.852	36.517	188.8	0.838	26.471
500	16.553	16.470	36.271	177.0	1.003	26.616
600	14.419	14.328	35.906	160.2	1.154	26.818
700	11.905	11.812	35.537	143.8	1.285	27.042
800	9.849	9.754	35.287	141.0	1.396	27.218
900	7.873	7.779	35.116	152.2	1.489	27.398
1000	6.736	6.639	35.086	180.7	1.566	27.536
1100	5.766	5.666	35.069	208.6	1.630	27.650
1200	5.146	5.042	35.044	228.0	1.686	27.705
1300	4.828	4.718	35.033	236.3	1.738	27.734
1400	4.489	4.373	35.012	244.4	1.788	27.756
1500	4.246	4.123	34.993	250.1	1.837	27.768
1750	3.826	3.684	34.967	257.0	1.956	27.792
2000	3.539	3.378	34.953	259.2	2.071	27.812
2500	3.105	2.903	34.942	258.4	2.296	27.848
3000	2.636	2.393	34.915	262.8	2.512	27.871
3500	2.358	2.070	34.896	263.9	2.722	27.883

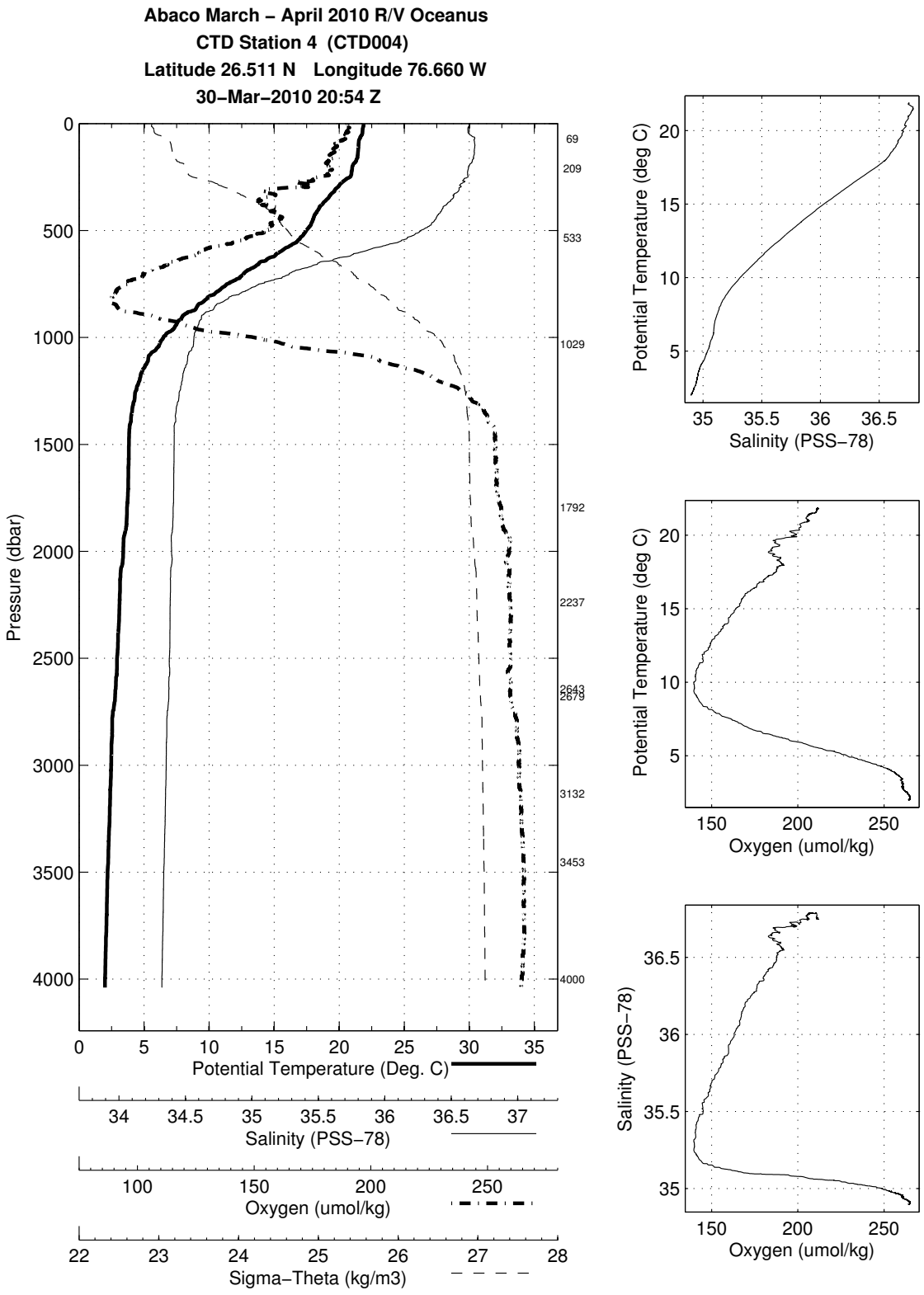
Pressure	Niskin	Temp90	PoTemp90	Salinity	Oxygen
dbar		°C	°C	PSS-78	μmol·kg^{-1}
3908	2	2.273	1.941	34.888	NaN
3181	4	2.512	2.254	34.907	NaN
2563	6	3.066	2.859	34.941	NaN
1961	8	3.583	3.425	34.957	NaN
1493	10	4.248	4.125	34.996	NaN
1014	12	6.547	6.450	35.082	NaN
767	14	10.150	10.058	35.323	NaN
512	16	15.994	15.911	36.178	NaN
205	18	20.901	20.861	36.745	NaN
105	20	21.532	21.511	36.764	NaN
54	22	21.822	21.811	36.762	NaN


Abaco March – April 2010 R/V Oceanus
CTD Station 3 (CTD003)
Latitude 26.366 N Longitude 75.706 W
29–Mar–2010 21:11 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)

Abaco March - April 2010 R/V Oceanus
CTD Station 4 (CTD004)
Latitude 26.511N Longitude 76.660W
30-Mar-2010 20:54Z

Pressure	Temp90	PoTemp90	Salinity	Oxygen	DynHt	SigT
dbar	°C	°C	PSS-78	μmol·kg^{-1}	m^2·s^{-2}	kg·m^{-3}
1	21.871	21.871	36.742	211.3	0.002	25.579
10	21.875	21.874	36.740	211.3	0.024	25.576
20	21.826	21.822	36.734	211.8	0.048	25.586
30	21.803	21.797	36.733	211.4	0.072	25.593
50	21.765	21.755	36.743	211.6	0.120	25.612
75	21.544	21.530	36.770	210.2	0.179	25.695
100	21.507	21.487	36.775	207.5	0.236	25.711
125	21.479	21.455	36.772	207.0	0.294	25.718
150	21.446	21.417	36.769	206.5	0.352	25.726
200	21.051	21.013	36.739	205.7	0.467	25.815
250	20.883	20.834	36.734	202.4	0.580	25.860
300	19.883	19.827	36.681	192.6	0.686	26.090
400	18.493	18.422	36.580	189.9	0.876	26.377
500	17.543	17.457	36.451	186.7	1.050	26.517
600	15.529	15.434	36.092	166.9	1.212	26.717
700	12.757	12.659	35.658	149.2	1.352	26.971
800	10.466	10.367	35.350	140.5	1.470	27.162
900	8.057	7.961	35.129	152.1	1.568	27.381
1000	6.578	6.482	35.084	182.9	1.646	27.556
1100	5.415	5.318	35.046	220.4	1.708	27.674
1200	4.765	4.664	35.015	238.7	1.761	27.726
1300	4.331	4.225	34.988	249.5	1.809	27.753
1400	4.050	3.939	34.969	254.5	1.856	27.768
1500	3.956	3.836	34.966	256.3	1.902	27.776
1750	3.883	3.742	34.962	257.2	2.020	27.783
2000	3.563	3.402	34.950	260.5	2.139	27.807
2500	3.121	2.919	34.936	261.0	2.365	27.842
3000	2.714	2.470	34.917	263.4	2.583	27.867
3500	2.486	2.194	34.902	265.0	2.801	27.878
4000	2.342	1.998	34.891	264.5	3.020	27.885

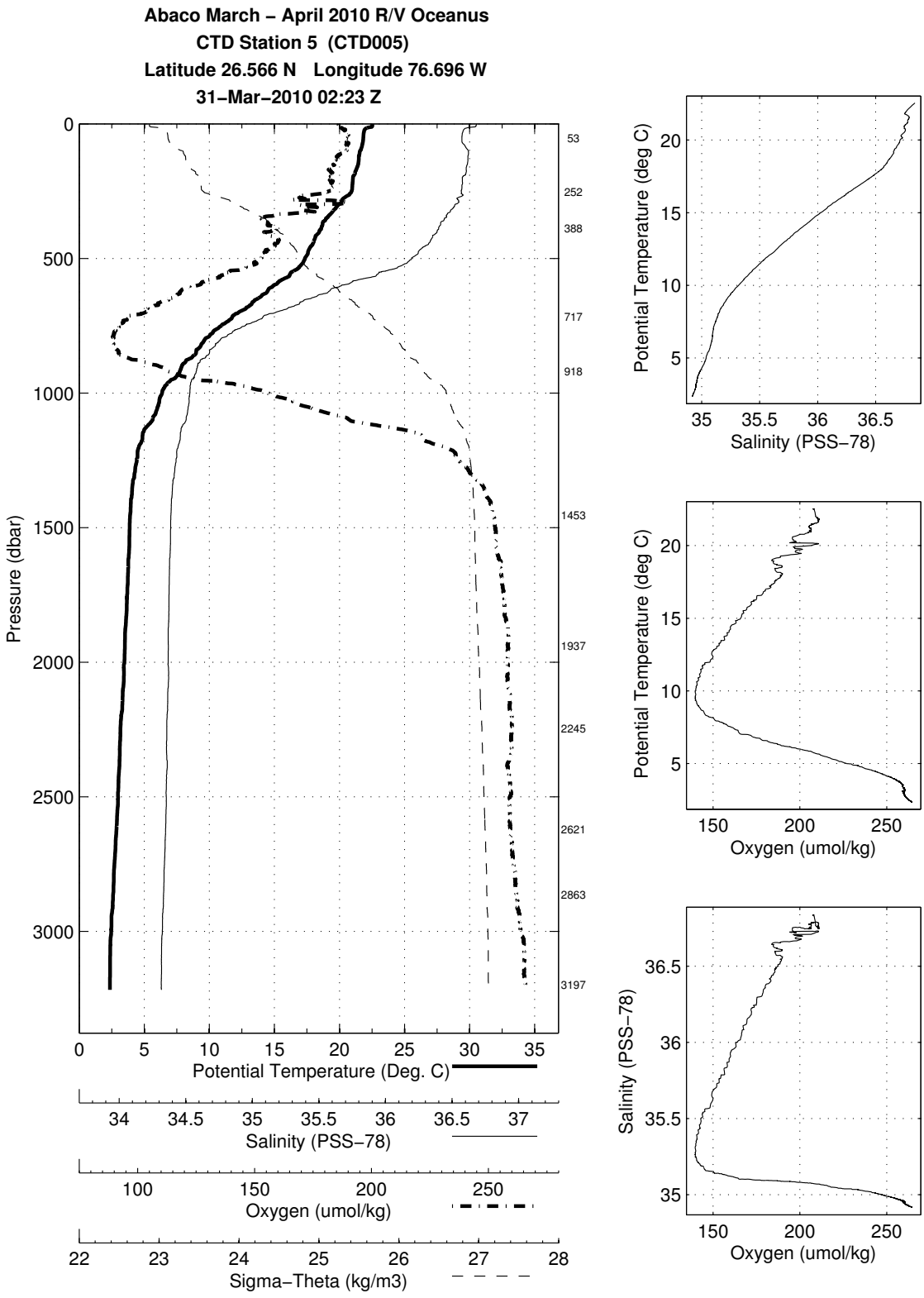
Pressure	Niskin	Temp90	PoTemp90	Salinity	Oxygen
dbar		°C	°C	PSS-78	μmol·kg^{-1}
4001	2	2.338	1.994	34.891	NaN
3454	4	2.519	2.231	34.908	NaN
3132	6	2.647	2.391	34.914	NaN
2679	8	2.963	2.746	34.933	NaN
2643	10	3.033	2.818	34.937	NaN
2238	12	3.322	3.142	34.944	NaN
1793	14	3.870	3.724	34.961	NaN
1030	16	6.291	6.194	35.078	NaN
533	18	16.976	16.887	36.346	NaN
210	20	21.052	21.011	36.736	NaN
70	22	21.660	21.646	36.760	NaN


Abaco March – April 2010 R/V Oceanus
CTD Station 4 (CTD004)
Latitude 26.511 N Longitude 76.660 W
30–Mar–2010 20:54 Z
Pressure (dbar)
0
500
1000
1500
2000
2500
3000
3500
4000
69
209
533
1029
1792
2237
2643
2679
3132
3453
4000
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
35 35.5 36 36.5
Salinity (PSS–78)
Potential Temperature (deg C)
5 10 15 20
150 200 250
Oxygen (umol/kg)
Salinity (PSS–78)
35 35.5 36 36.5
150 200 250
Oxygen (umol/kg)

Abaco March - April 2010 R/V Oceanus
CTD Station 5 (CTD005)
Latitude 26.566N Longitude 76.696W
31-Mar-2010 02:23Z

Pressure	Temp90	PoTemp90	Salinity	Oxygen	DynHt	SigT
dbar	°C	°C	PSS-78	μmol·kg^{-1}	m^2·s^{-2}	kg·m^{-3}
1	22.533	22.533	36.823	208.0	0.003	25.452
10	22.506	22.504	36.817	207.8	0.025	25.456
20	21.959	21.955	36.748	209.4	0.050	25.559
30	21.888	21.882	36.740	210.2	0.074	25.574
50	21.845	21.835	36.735	210.9	0.122	25.583
75	21.777	21.762	36.744	211.1	0.183	25.611
100	21.597	21.577	36.774	210.3	0.242	25.685
125	21.509	21.484	36.771	207.1	0.300	25.709
150	21.476	21.447	36.768	206.8	0.358	25.717
200	21.071	21.033	36.737	205.5	0.473	25.808
250	20.976	20.928	36.731	205.2	0.586	25.832
300	19.973	19.917	36.693	196.2	0.694	26.076
400	18.519	18.448	36.585	187.5	0.884	26.374
500	17.432	17.346	36.429	184.5	1.057	26.528
600	15.021	14.928	36.003	165.5	1.216	26.761
700	12.341	12.245	35.605	149.7	1.353	27.011
800	9.755	9.660	35.270	139.8	1.466	27.221
900	7.976	7.881	35.129	153.6	1.561	27.393
1000	6.466	6.370	35.084	186.8	1.637	27.571
1100	5.737	5.637	35.062	211.4	1.700	27.647
1200	4.686	4.586	35.013	240.0	1.753	27.733
1300	4.349	4.244	34.990	248.1	1.802	27.752
1400	4.082	3.970	34.972	253.9	1.849	27.767
1500	4.001	3.881	34.968	255.5	1.896	27.773
1750	3.823	3.682	34.958	258.1	2.014	27.786
2000	3.639	3.477	34.953	258.9	2.132	27.802
2500	3.187	2.984	34.941	259.9	2.362	27.840
3000	2.705	2.460	34.917	263.1	2.583	27.867

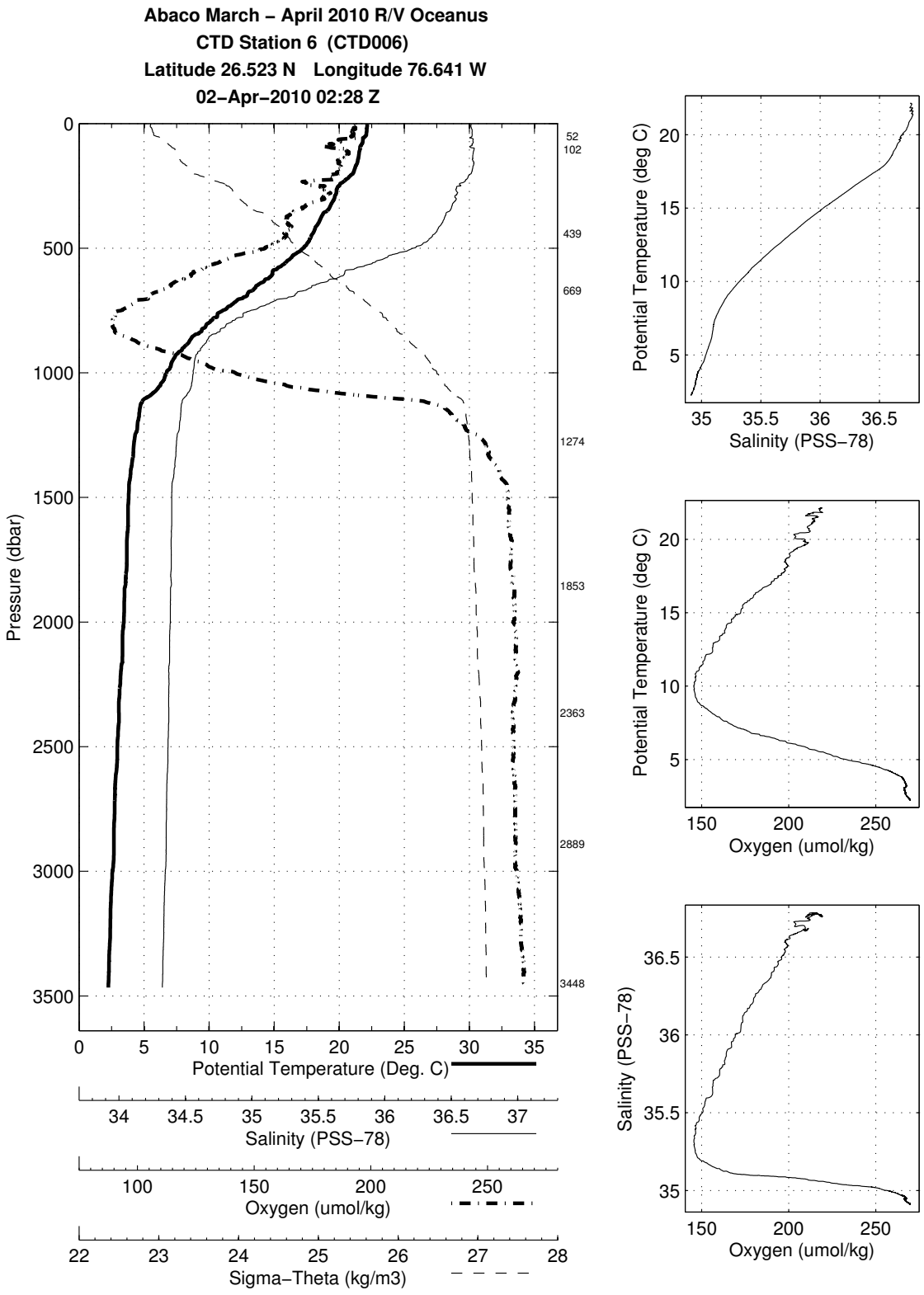
Pressure	Niskin	Temp90	PoTemp90	Salinity	Oxygen
dbar		°C	°C	PSS-78	μmol·kg^{-1}
3197	2	2.621	2.358	34.909	NaN
2864	4	2.878	2.644	34.927	NaN
2622	6	3.066	2.853	34.936	NaN
2246	8	3.407	3.225	34.945	NaN
1938	10	3.675	3.519	34.953	NaN
1453	12	4.033	3.912	36.730	NaN
919	14	8.012	7.915	35.129	NaN
717	16	11.965	11.869	35.548	NaN
389	18	18.547	18.478	36.584	NaN
253	20	20.981	20.932	36.728	NaN
53	22	21.816	21.806	36.732	NaN


Abaco March – April 2010 R/V Oceanus
CTD Station 5 (CTD005)
Latitude 26.566 N Longitude 76.696 W
31–Mar–2010 02:23 Z
Pressure (dbar)
0
500
1000
1500
2000
2500
3000
53
252
388
717
918
1453
1937
2245
2621
2863
3197
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
35 35.5 36 36.5
Salinity (PSS–78)
Potential Temperature (deg C)
5 10 15 20
150 200 250
Oxygen (umol/kg)
Salinity (PSS–78)
35 35.5 36 36.5
150 200 250
Oxygen (umol/kg)

Abaco March - April 2010 R/V Oceanus
CTD Station 6 (CTD006)
Latitude 26.523N Longitude 76.641W
02-Apr-2010 02:28Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	22.142	22.142	36.752	218.9	0.002	25.509
10	22.148	22.146	36.749	218.7	0.025	25.506
20	22.123	22.119	36.753	218.7	0.049	25.517
30	22.118	22.112	36.757	218.2	0.074	25.522
50	22.037	22.027	36.756	217.5	0.123	25.545
75	21.815	21.800	36.763	214.1	0.183	25.615
100	21.627	21.607	36.770	214.6	0.243	25.674
125	21.533	21.509	36.762	216.5	0.301	25.695
150	21.451	21.421	36.762	213.9	0.360	25.719
200	21.105	21.067	36.752	213.2	0.474	25.810
250	20.062	20.015	36.687	209.0	0.582	26.045
300	19.675	19.620	36.661	209.2	0.683	26.130
400	18.450	18.380	36.576	198.7	0.872	26.384
500	17.304	17.219	36.405	191.7	1.044	26.540
600	14.953	14.860	35.994	169.9	1.200	26.770
700	12.685	12.587	35.650	156.2	1.337	26.979
800	10.046	9.949	35.304	145.5	1.452	27.198
900	8.094	7.998	35.137	158.0	1.548	27.382
1000	6.831	6.733	35.089	182.6	1.626	27.526
1100	5.301	5.205	35.038	227.5	1.691	27.681
1200	4.605	4.506	35.009	251.1	1.741	27.739
1300	4.293	4.188	34.988	258.6	1.789	27.756
1400	4.078	3.966	34.976	262.2	1.836	27.770
1500	3.936	3.816	34.962	265.1	1.882	27.775
1750	3.812	3.671	34.959	265.7	1.999	27.787
2000	3.610	3.448	34.953	266.5	2.116	27.805
2500	3.148	2.945	34.939	266.6	2.344	27.841
3000	2.821	2.574	34.923	267.4	2.568	27.862

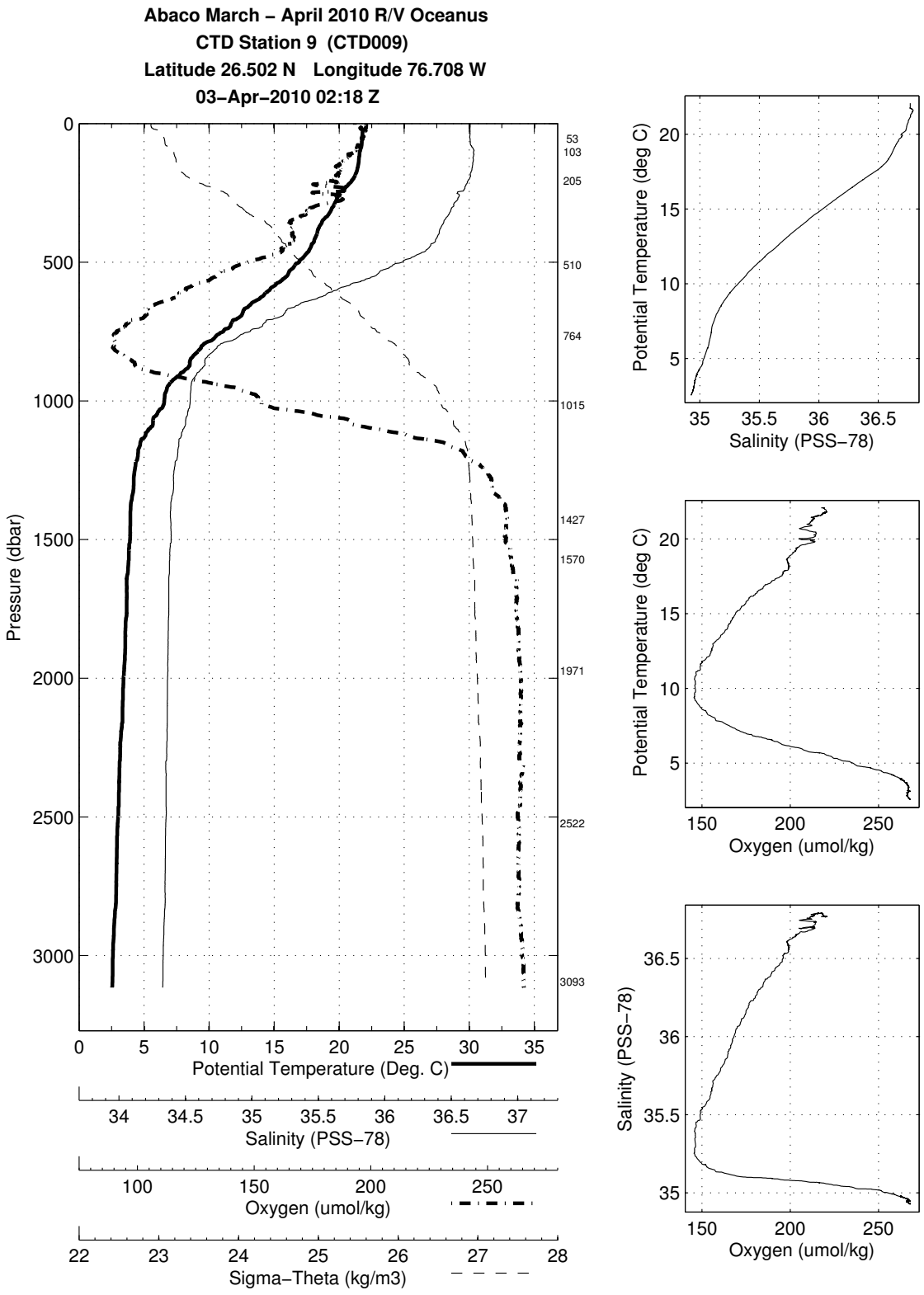
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
3449	2	2.552	2.264	34.906	NaN
2890	4	2.927	2.689	34.927	NaN
2364	6	3.261	3.070	34.943	NaN
1854	8	3.672	3.524	34.955	NaN
1274	10	4.321	4.218	34.989	NaN
670	12	13.284	14.078	−999.000	NaN
440	14	17.964	17.888	36.524	NaN
103	16	21.595	21.574	36.761	NaN
52	18	21.837	21.826	36.765	NaN


Abaco March – April 2010 R/V Oceanus
CTD Station 6 (CTD006)
Latitude 26.523 N Longitude 76.641 W
02–Apr–2010 02:28 Z
Pressure (dbar)
0
500
1000
1500
2000
2500
3000
3500
52
102
439
669
1274
1853
2363
2889
3448
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
35 35.5 36 36.5
Salinity (PSS–78)
Potential Temperature (deg C)
5 10 15 20
150 200 250
Oxygen (umol/kg)
Salinity (PSS–78)
35 35.5 36 36.5
150 200 250
Oxygen (umol/kg)

Abaco March - April 2010 R/V Oceanus
CTD Station 9 (CTD009)
Latitude 26.502N Longitude 76.708W
03-Apr-2010 02:18Z

Pressure	Temp90	PoTemp90	Salinity	Oxygen	DynHt	SigT
dbar	°C	°C	PSS-78	μmol·kg^{-1}	m^2·s^{-2}	kg·m^{-3}
1	22.080	22.080	36.755	217.6	0.002	25.530
10	22.078	22.076	36.754	218.9	0.024	25.530
20	22.003	21.999	36.754	219.4	0.049	25.552
30	21.803	21.798	36.754	220.6	0.073	25.608
50	21.771	21.761	36.752	219.7	0.121	25.617
75	21.747	21.732	36.756	219.3	0.180	25.629
100	21.611	21.591	36.776	217.9	0.239	25.683
125	21.545	21.520	36.773	215.2	0.298	25.701
150	21.487	21.458	36.769	212.8	0.356	25.715
200	21.132	21.093	36.750	211.3	0.471	25.801
250	20.047	20.000	36.680	205.2	0.580	26.044
300	19.588	19.532	36.653	205.4	0.680	26.147
400	18.347	18.277	36.566	198.8	0.866	26.403
500	16.988	16.904	36.347	185.7	1.036	26.572
600	14.758	14.666	35.961	167.4	1.191	26.787
700	12.371	12.275	35.606	154.5	1.323	27.007
800	9.561	9.468	35.252	145.8	1.436	27.239
900	7.908	7.814	35.125	158.9	1.529	27.400
1000	6.653	6.556	35.085	189.3	1.603	27.547
1100	5.543	5.445	35.047	223.1	1.666	27.659
1200	4.626	4.527	35.010	250.6	1.718	27.738
1300	4.310	4.205	34.987	258.2	1.766	27.754
1400	4.056	3.944	34.968	262.7	1.813	27.766
1500	4.047	3.926	34.974	262.5	1.860	27.773
1750	3.800	3.659	34.958	265.7	1.976	27.788
2000	3.586	3.425	34.950	267.0	2.094	27.805
2500	3.205	3.001	34.941	266.2	2.325	27.838
3000	2.853	2.605	34.924	267.3	2.552	27.860

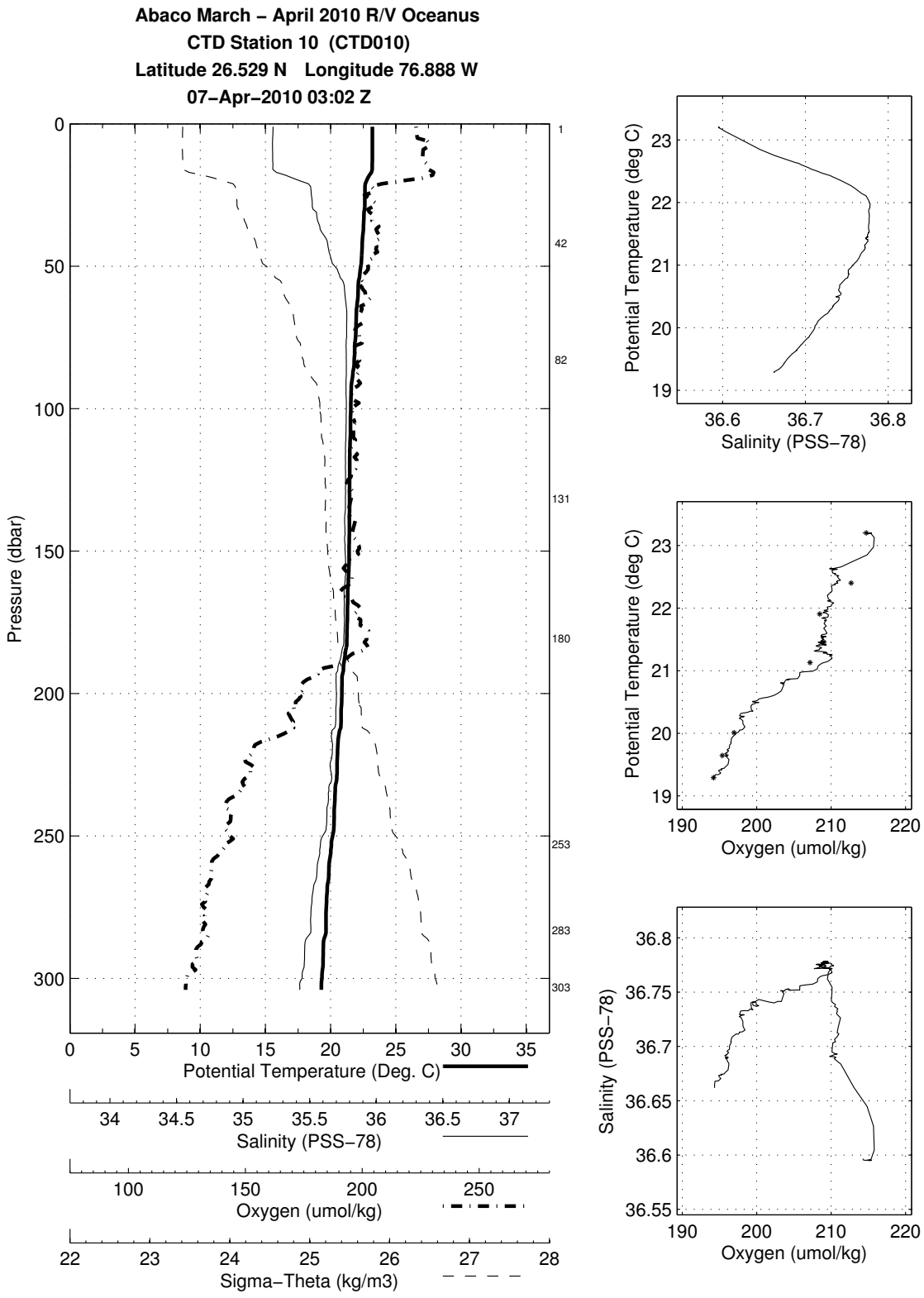
Pressure	Niskin	Temp90	PoTemp90	Salinity	Oxygen
dbar		°C	°C	PSS-78	μmol·kg^{-1}
3093	2	2.824	2.567	34.923	NaN
2522	4	3.223	3.017	34.966	NaN
1972	6	3.581	3.422	34.951	NaN
1570	8	3.974	3.848	34.964	NaN
1428	10	4.000	3.886	34.966	NaN
1016	12	6.616	6.518	35.083	NaN
764	14	10.755	10.659	36.321	NaN
510	16	16.844	16.759	36.321	NaN
205	18	20.729	20.689	36.731	NaN
103	20	21.568	21.547	36.766	NaN
53	22	21.789	21.778	36.749	NaN


Abaco March – April 2010 R/V Oceanus
CTD Station 9 (CTD009)
Latitude 26.502 N Longitude 76.708 W
03–Apr–2010 02:18 Z
Pressure (dbar)
0
500
1000
1500
2000
2500
3000
53
103
205
510
764
1015
1427
1570
1971
2522
3093
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
35 35.5 36 36.5
Salinity (PSS–78)
Potential Temperature (deg C)
5 10 15 20
150 200 250
Oxygen (umol/kg)
Salinity (PSS–78)
35 35.5 36 36.5
150 200 250
Oxygen (umol/kg)

Abaco March - April 2010 R/V Oceanus
CTD Station 10 (CTD010)
Latitude 26.529N Longitude 76.888W
07-Apr-2010 03:02Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	23.202	23.202	36.582	214.3	0.003	25.075
10	23.203	23.201	36.581	214.9	0.029	25.074
20	22.759	22.754	36.648	213.1	0.057	25.255
30	22.609	22.603	36.681	210.1	0.084	25.324
50	22.324	22.314	36.734	210.1	0.136	25.447
75	21.932	21.917	36.764	209.4	0.197	25.582
100	21.562	21.543	36.763	208.7	0.257	25.687
125	21.479	21.455	36.761	208.4	0.315	25.710
150	21.440	21.411	36.760	209.2	0.373	25.721
200	20.896	20.858	36.739	204.0	0.487	25.857
250	20.194	20.147	36.705	198.2	0.595	26.023
300	19.391	19.336	36.654	194.4	0.694	26.199

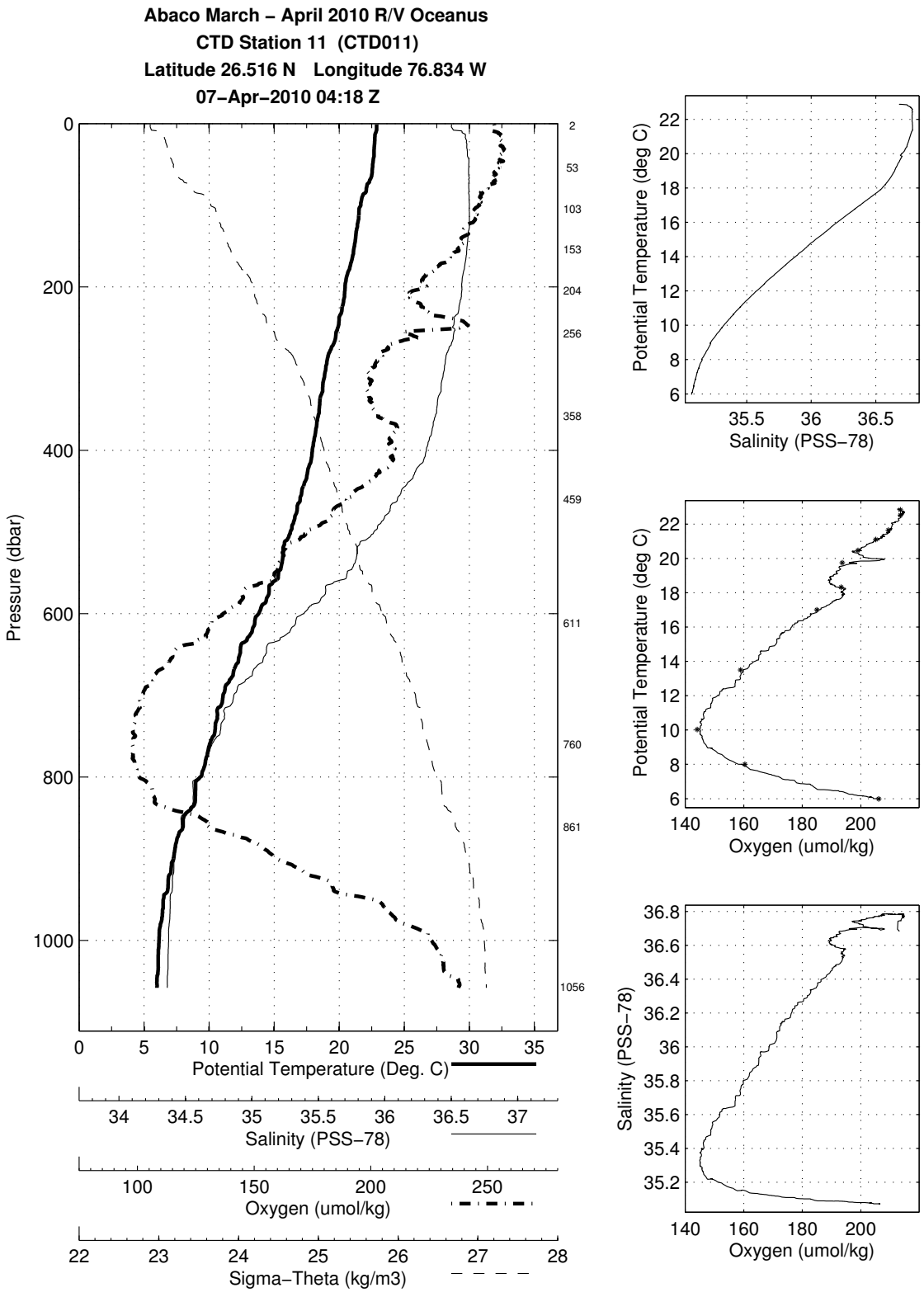
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
303	1	19.346	19.290	36.649	194.2
283	2	19.697	19.645	36.673	195.4
253	3	20.063	20.015	36.697	197.0
181	4	21.151	21.116	36.749	207.2
132	5	21.471	21.445	36.753	209.0
83	6	21.904	21.888	36.761	208.5
42	7	22.499	22.491	36.759	212.7
2	8	23.176	23.176	36.580	214.7


Abaco March – April 2010 R/V Oceanus
CTD Station 10 (CTD010)
Latitude 26.529 N Longitude 76.888 W
07–Apr–2010 03:02 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)

Abaco March - April 2010 R/V Oceanus
CTD Station 11 (CTD011)
Latitude 26.516N Longitude 76.834W
07-Apr-2010 04:18Z

Pressure	Temp90	PoTemp90	Salinity	Oxygen	DynHt	SigT
dbar	°C	°C	PSS-78	μmol·kg^{-1}	m^2·s^{-2}	kg·m^{-3}
1	22.876	22.876	36.671	213.0	0.003	25.237
10	22.835	22.833	36.730	213.4	0.027	25.295
20	22.735	22.731	36.754	214.2	0.054	25.343
30	22.691	22.685	36.757	214.7	0.080	25.358
50	22.575	22.565	36.768	214.1	0.132	25.401
75	22.155	22.140	36.768	211.8	0.196	25.523
100	21.672	21.652	36.772	210.3	0.256	25.663
125	21.425	21.401	36.772	207.6	0.314	25.733
150	21.200	21.171	36.759	206.0	0.371	25.787
200	20.488	20.450	36.729	200.0	0.481	25.961
250	19.928	19.881	36.680	206.5	0.585	26.075
300	19.019	18.965	36.631	189.9	0.681	26.277
400	18.002	17.932	36.529	194.3	0.859	26.460
500	16.323	16.241	36.232	178.2	1.023	26.640
600	13.899	13.811	35.835	162.0	1.171	26.872
700	11.160	11.071	35.440	146.6	1.294	27.105
800	9.409	9.317	35.242	146.3	1.400	27.256
900	7.351	7.259	35.108	172.1	1.487	27.468
1000	6.242	6.148	35.073	201.2	1.556	27.591

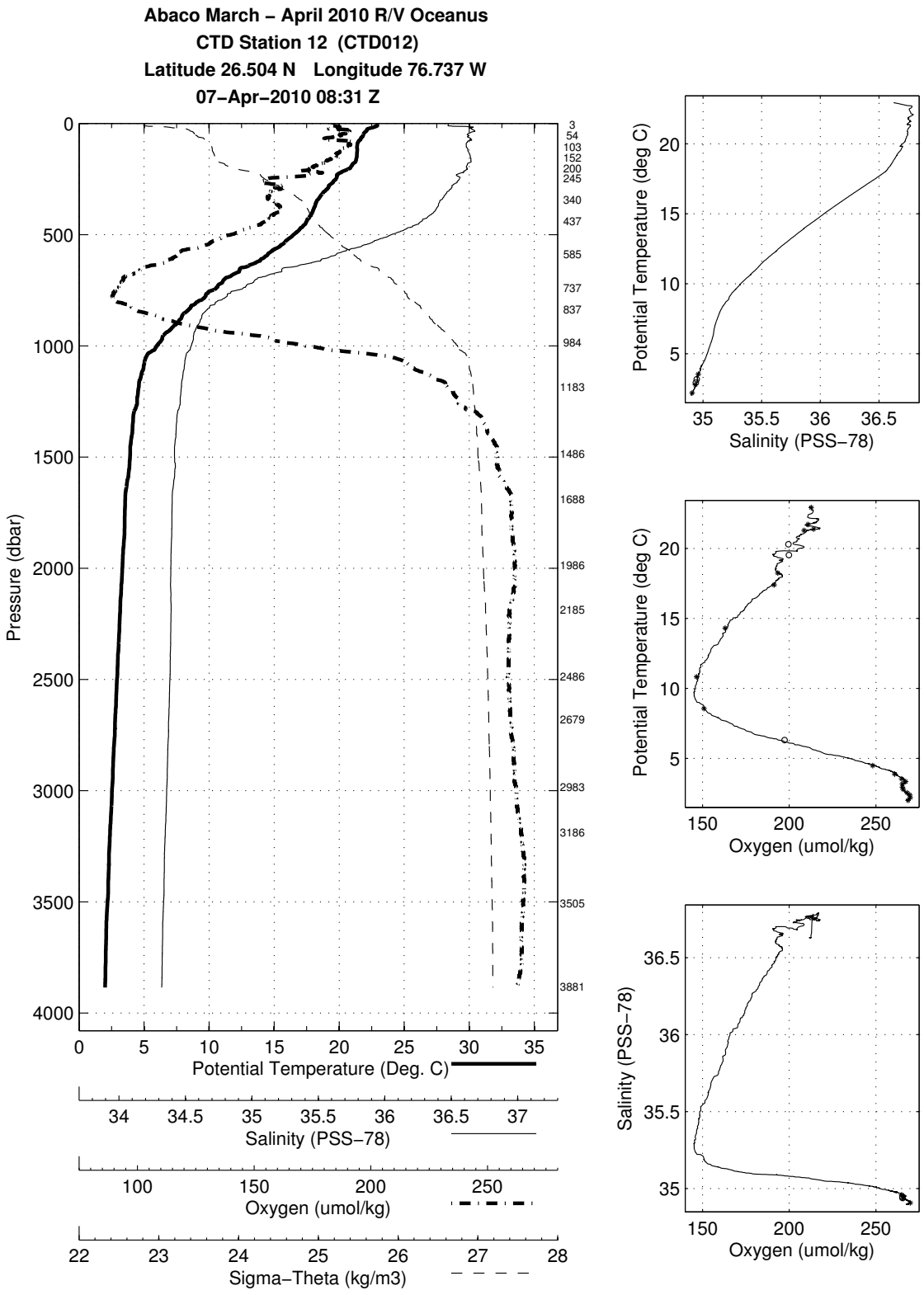
Pressure	Niskin	Temp90	PoTemp90	Salinity	Oxygen
dbar		°C	°C	PSS-78	μmol·kg^{-1}
1057	1	6.087	5.989	35.064	206.1
861	2	8.082	7.991	35.143	160.4
760	3	10.138	10.046	35.317	144.1
612	4	13.562	13.473	35.778	158.9
460	5	17.083	17.006	36.364	185.0
358	6	18.392	18.329	36.570	193.3
256	7	19.836	19.788	36.687	193.6
204	8	20.525	20.486	36.730	199.0
154	9	21.142	21.112	36.758	205.1
104	10	21.649	21.629	36.772	209.4
53	11	22.529	22.518	36.765	213.6
3	12	22.784	22.783	36.709	213.5


Abaco March – April 2010 R/V Oceanus
CTD Station 11 (CTD011)
Latitude 26.516 N Longitude 76.834 W
07–Apr–2010 04:18 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)

Abaco March - April 2010 R/V Oceanus
CTD Station 12 (CTD012)
Latitude 26.504N Longitude 76.737W
07-Apr-2010 08:31Z

Pressure	Temp90	PoTemp90	Salinity	Oxygen	DynHt	SigT
dbar	°C	°C	PSS-78	μmol·kg^{-1}	m^2·s^{-2}	kg·m^{-3}
1	22.931	22.931	36.617	211.5	0.003	25.181
10	22.932	22.930	36.615	212.6	0.028	25.179
20	22.419	22.415	36.745	211.1	0.054	25.426
30	22.121	22.115	36.772	216.2	0.079	25.533
50	21.850	21.840	36.731	214.2	0.128	25.579
75	21.599	21.584	36.755	213.7	0.187	25.669
100	21.412	21.392	36.726	216.6	0.245	25.700
125	21.406	21.382	36.737	214.5	0.303	25.712
150	21.383	21.354	36.750	212.8	0.361	25.729
200	20.894	20.855	36.732	204.7	0.475	25.852
250	19.780	19.734	36.684	192.5	0.578	26.117
300	19.016	18.962	36.623	194.3	0.674	26.272
400	18.004	17.934	36.529	195.0	0.850	26.460
500	16.564	16.481	36.274	180.9	1.016	26.616
600	14.364	14.274	35.902	163.8	1.166	26.826
700	11.278	11.188	35.461	148.4	1.293	27.100
800	9.245	9.153	35.224	146.2	1.399	27.269
900	7.608	7.516	35.114	165.8	1.486	27.436
1000	6.061	5.969	35.068	203.9	1.556	27.611
1100	5.050	4.956	35.027	236.4	1.611	27.702
1200	4.650	4.551	35.008	247.9	1.662	27.733
1300	4.319	4.214	34.987	255.5	1.711	27.753
1400	4.173	4.060	34.977	259.4	1.758	27.762
1500	4.037	3.917	34.969	261.7	1.806	27.770
1750	3.655	3.516	34.953	266.1	1.920	27.798
2000	3.486	3.326	34.946	267.0	2.035	27.811
2500	3.117	2.915	34.940	265.1	2.259	27.845
3000	2.776	2.530	34.921	267.5	2.481	27.864
3500	2.479	2.187	34.902	269.4	2.700	27.878

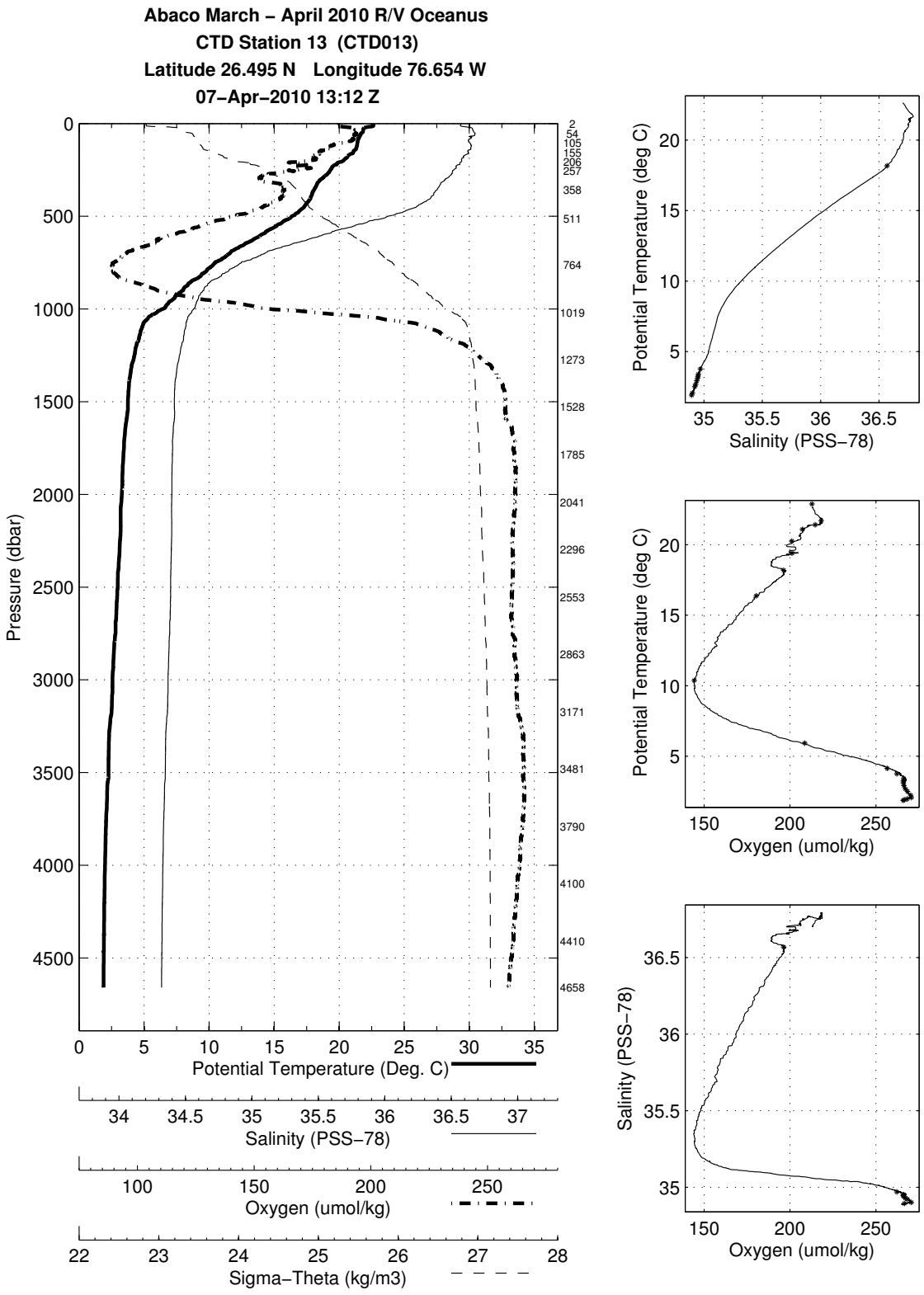
Pressure	Niskin	Temp90	PoTemp90	Salinity	Oxygen
dbar		°C	°C	PSS-78	μmol·kg^{-1}
3882	1	2.332	2.002	34.892	268.6
3505	2	2.487	2.195	34.903	269.8
3186	3	2.640	2.377	34.913	269.6
2983	4	2.788	2.544	34.922	268.0
2679	5	3.006	2.788	34.935	265.7
2486	6	3.137	2.936	34.941	265.3
2186	7	3.351	3.176	34.948	265.3
1986	8	3.495	3.336	34.947	267.2
1688	9	3.676	3.542	34.955	264.8
1487	10	3.993	3.874	34.970	260.9
1183	11	4.620	4.523	35.011	248.2
984	12	6.383	6.290	35.078	197.4
837	13	8.593	8.501	35.167	150.9
738	14	10.914	10.820	35.414	146.6
586	15	14.421	14.333	35.905	163.1
438	16	17.442	17.368	36.443	191.3
340	17	18.303	18.243	36.569	193.4
246	18	19.504	19.459	36.654	199.8
201	19	20.336	20.298	36.705	199.5
152	20	21.241	21.212	36.734	208.6
104	21	21.390	21.369	36.730	214.1
54	22	21.762	21.751	36.752	210.8
3	23	22.770	22.770	36.664	212.6


Abaco March – April 2010 R/V Oceanus
CTD Station 12 (CTD012)
Latitude 26.504 N Longitude 76.737 W
07–Apr–2010 08:31 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)

Abaco March - April 2010 R/V Oceanus
CTD Station 13 (CTD013)
Latitude 26.495N Longitude 76.654W
07-Apr-2010 13:12Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	22.642	22.642	36.691	213.4	0.003	25.320
10	22.639	22.637	36.689	212.8	0.026	25.320
20	22.082	22.078	36.736	216.3	0.052	25.515
30	21.859	21.853	36.762	218.2	0.076	25.599
50	21.731	21.721	36.777	218.5	0.124	25.647
75	21.527	21.513	36.750	217.6	0.182	25.685
100	21.432	21.413	36.742	215.8	0.240	25.706
125	21.364	21.340	36.753	211.1	0.298	25.736
150	21.133	21.104	36.734	207.6	0.355	25.786
200	20.363	20.325	36.696	204.6	0.465	25.969
250	19.381	19.335	36.649	199.2	0.563	26.195
300	18.647	18.594	36.595	189.2	0.656	26.345
400	17.871	17.802	36.510	195.3	0.829	26.479
500	16.437	16.355	36.250	181.0	0.993	26.627
600	14.081	13.992	35.856	162.6	1.141	26.851
700	11.667	11.575	35.505	148.5	1.269	27.063
800	9.821	9.726	35.279	144.4	1.378	27.217
900	8.096	8.000	35.137	157.8	1.471	27.382
1000	6.511	6.415	35.076	192.2	1.548	27.559
1100	4.924	4.831	35.028	240.5	1.604	27.717
1200	4.495	4.396	35.004	252.2	1.654	27.747
1300	4.153	4.050	34.979	259.4	1.701	27.765
1400	3.953	3.842	34.965	263.2	1.747	27.774
1500	3.876	3.757	34.961	264.1	1.792	27.780
1750	3.591	3.453	34.951	266.6	1.905	27.803
2000	3.448	3.289	34.946	267.2	2.017	27.815
2500	3.177	2.974	34.939	266.3	2.244	27.839
3000	2.819	2.572	34.922	267.5	2.468	27.862
3500	2.555	2.261	34.906	269.7	2.689	27.875
4000	2.340	1.996	34.891	268.5	2.909	27.884
4500	2.296	1.895	34.884	266.0	3.135	27.887

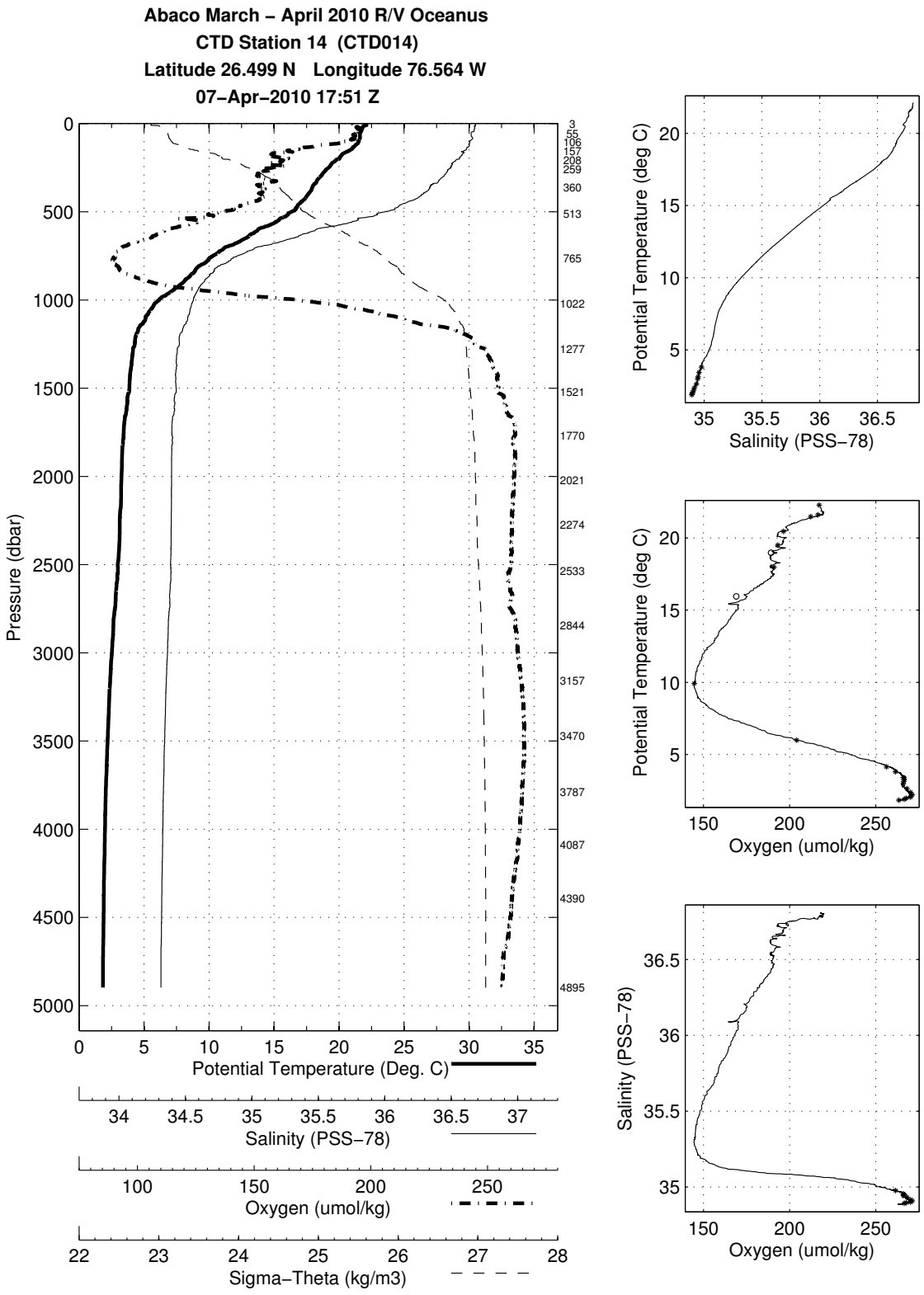
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
4658	1	2.299	1.878	34.880	265.8
4410	2	2.302	1.912	34.886	266.6
4100	3	2.325	1.970	34.890	268.1
3790	4	2.389	2.067	34.896	270.6
3481	5	2.529	2.238	34.905	270.2
3172	6	2.778	2.514	34.920	268.3
2864	7	2.916	2.681	34.928	267.2
2553	8	3.135	2.927	34.939	266.3
2297	9	3.310	3.125	34.944	265.9
2041	10	3.420	3.258	34.945	265.9
1785	11	3.541	3.401	34.949	266.1
1529	12	3.890	3.769	34.964	262.1
1273	13	4.244	4.141	34.987	256.5
1019	14	6.008	5.914	35.062	208.5
764	15	10.489	10.395	35.356	144.3
511	16	16.492	16.408	36.258	180.3
359	17	18.243	18.180	36.558	196.3
257	18	19.426	19.379	36.655	201.1
206	19	20.247	20.208	36.697	201.1
156	20	21.129	21.099	36.738	207.3
105	21	21.426	21.406	36.740	214.7
54	22	21.665	21.654	36.751	218.1
3	23	22.886	22.885	36.678	212.7


Abaco March – April 2010 R/V Oceanus
CTD Station 13 (CTD013)
Latitude 26.495 N Longitude 76.654 W
07–Apr–2010 13:12 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)

Abaco March - April 2010 R/V Oceanus
CTD Station 14 (CTD014)
Latitude 26.499N Longitude 76.564W
07-Apr-2010 17:51Z

Pressure	Temp90	PoTemp90	Salinity	Oxygen	DynHt	SigT
dbar	°C	°C	PSS-78	μmol·kg^{-1}	m^2·s^{-2}	kg·m^{-3}
1	22.098	22.098	36.795	217.7	0.002	25.555
10	22.107	22.105	36.795	217.9	0.024	25.552
20	21.822	21.818	36.788	218.8	0.048	25.628
30	21.772	21.766	36.786	219.2	0.071	25.642
50	21.634	21.624	36.767	219.2	0.118	25.667
75	21.619	21.604	36.772	218.2	0.177	25.676
100	21.505	21.486	36.752	216.2	0.235	25.694
125	21.252	21.228	36.756	206.6	0.293	25.769
150	20.892	20.863	36.735	198.9	0.349	25.853
200	20.061	20.023	36.697	197.3	0.453	26.050
250	19.231	19.186	36.640	193.4	0.550	26.227
300	18.629	18.575	36.598	189.0	0.641	26.352
400	17.697	17.628	36.472	189.8	0.813	26.492
500	16.427	16.345	36.242	177.7	0.976	26.623
600	13.851	13.763	35.823	161.2	1.125	26.873
700	11.363	11.272	35.465	147.5	1.251	27.088
800	9.483	9.390	35.243	145.6	1.359	27.245
900	8.112	8.016	35.139	156.7	1.452	27.380
1000	6.250	6.156	35.077	200.7	1.527	27.593
1100	5.217	5.122	35.043	232.1	1.585	27.695
1200	4.484	4.386	34.994	252.5	1.635	27.740
1300	4.242	4.137	34.979	258.5	1.683	27.755
1400	4.069	3.957	34.971	261.2	1.730	27.768
1500	3.996	3.876	34.972	261.7	1.776	27.777
1750	3.570	3.432	34.947	267.2	1.890	27.802
2000	3.424	3.265	34.945	266.9	2.001	27.816
2500	3.185	2.981	34.938	266.0	2.229	27.838
3000	2.772	2.527	34.919	268.0	2.453	27.863
3500	2.489	2.197	34.902	269.8	2.671	27.877
4000	2.335	1.992	34.890	268.6	2.889	27.884
4500	2.289	1.889	34.883	265.8	3.115	27.887

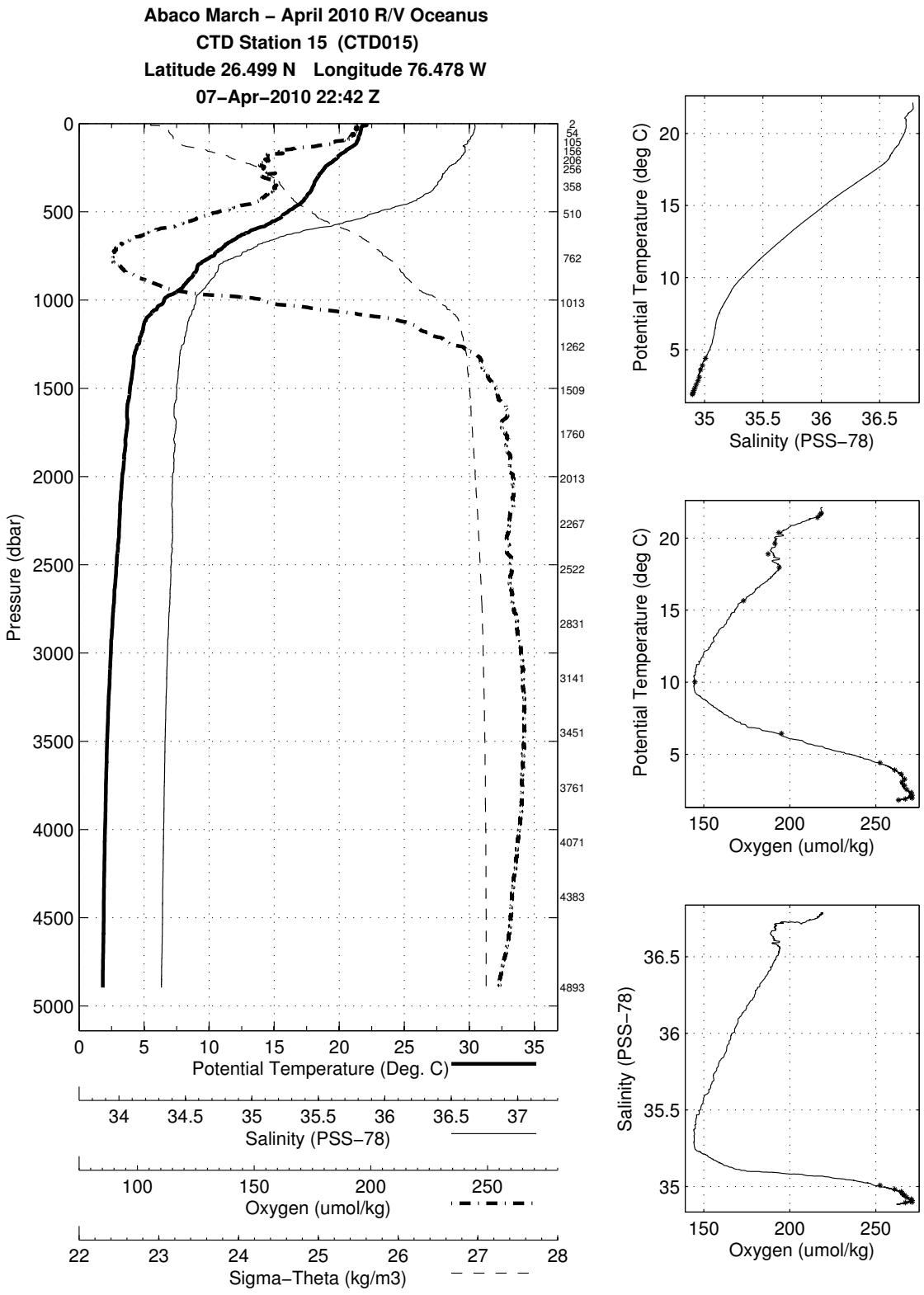
Pressure	Niskin	Temp90	PoTemp90	Salinity	Oxygen
dbar		°C	°C	PSS-78	μmol·kg^{-1}
4896	1	2.291	1.842	34.877	263.4
4390	2	2.288	1.900	34.883	266.5
4087	3	2.328	1.974	34.924	267.6
3787	4	2.377	2.056	34.892	270.2
3471	5	2.505	2.215	34.901	271.1
3157	6	2.644	2.385	34.911	270.1
2844	7	2.869	2.638	34.942	268.0
2534	8	3.207	7.019	−999.000	NaN
2275	9	3.321	3.138	34.941	266.2
2022	10	3.413	3.252	34.942	266.4
1770	11	3.573	3.434	34.948	265.8
1522	12	3.933	3.811	34.969	261.3
1277	13	4.255	4.153	34.978	256.2
1022	14	6.085	5.990	35.071	204.1
766	15	9.974	9.883	35.299	144.7
513	16	15.930	15.848	36.145	169.0
361	17	18.092	18.029	36.529	190.9
259	18	19.068	19.021	36.632	189.2
208	19	19.571	19.533	36.657	193.1
157	20	20.504	20.475	36.715	196.4
106	21	21.541	21.520	36.773	212.2
56	22	21.612	21.601	36.765	216.4
3	23	22.278	22.278	36.792	217.2


Abaco March – April 2010 R/V Oceanus
CTD Station 14 (CTD014)
Latitude 26.499 N Longitude 76.564 W
07–Apr–2010 17:51 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)

Abaco March - April 2010 R/V Oceanus
CTD Station 15 (CTD015)
Latitude 26.499N Longitude 76.478W
07-Apr-2010 22:42Z

Pressure	Temp90	PoTemp90	Salinity	Oxygen	DynHt	SigT
dbar	°C	°C	PSS-78	μmol·kg^{-1}	m^2·s^{-2}	kg·m^{-3}
1	22.108	22.108	36.773	218.7	0.002	25.535
10	22.115	22.113	36.771	218.2	0.024	25.532
20	21.727	21.723	36.773	218.9	0.048	25.644
30	21.689	21.684	36.772	219.0	0.071	25.654
50	21.639	21.629	36.764	218.7	0.118	25.664
75	21.506	21.492	36.748	216.3	0.176	25.689
100	21.377	21.358	36.727	212.8	0.235	25.711
125	21.128	21.104	36.703	207.0	0.292	25.762
150	20.579	20.550	36.714	196.5	0.347	25.922
200	19.792	19.755	36.682	191.8	0.449	26.110
250	18.941	18.896	36.613	190.5	0.544	26.282
300	18.443	18.390	36.573	189.9	0.633	26.379
400	17.648	17.580	36.469	191.7	0.804	26.502
500	16.134	16.053	36.193	176.8	0.967	26.654
600	13.514	13.427	35.770	158.1	1.112	26.902
700	11.167	11.078	35.440	145.8	1.233	27.104
800	9.242	9.150	35.224	146.0	1.339	27.269
900	8.363	8.265	35.163	156.4	1.433	27.362
1000	6.640	6.544	35.086	190.1	1.513	27.549
1100	5.304	5.208	35.046	227.6	1.574	27.687
1200	4.874	4.772	35.023	242.1	1.627	27.720
1300	4.402	4.296	34.991	254.6	1.677	27.747
1400	4.223	4.109	34.979	258.2	1.725	27.758
1500	4.035	3.914	34.970	261.4	1.773	27.771
1750	3.778	3.637	34.960	264.2	1.890	27.792
2000	3.478	3.318	34.945	266.5	2.005	27.811
2500	3.092	2.891	34.937	265.5	2.230	27.845
3000	2.682	2.439	34.914	269.0	2.447	27.866
3500	2.444	2.153	34.899	270.1	2.662	27.878
4000	2.340	1.996	34.890	268.5	2.881	27.884
4500	2.293	1.893	34.883	265.9	3.107	27.887

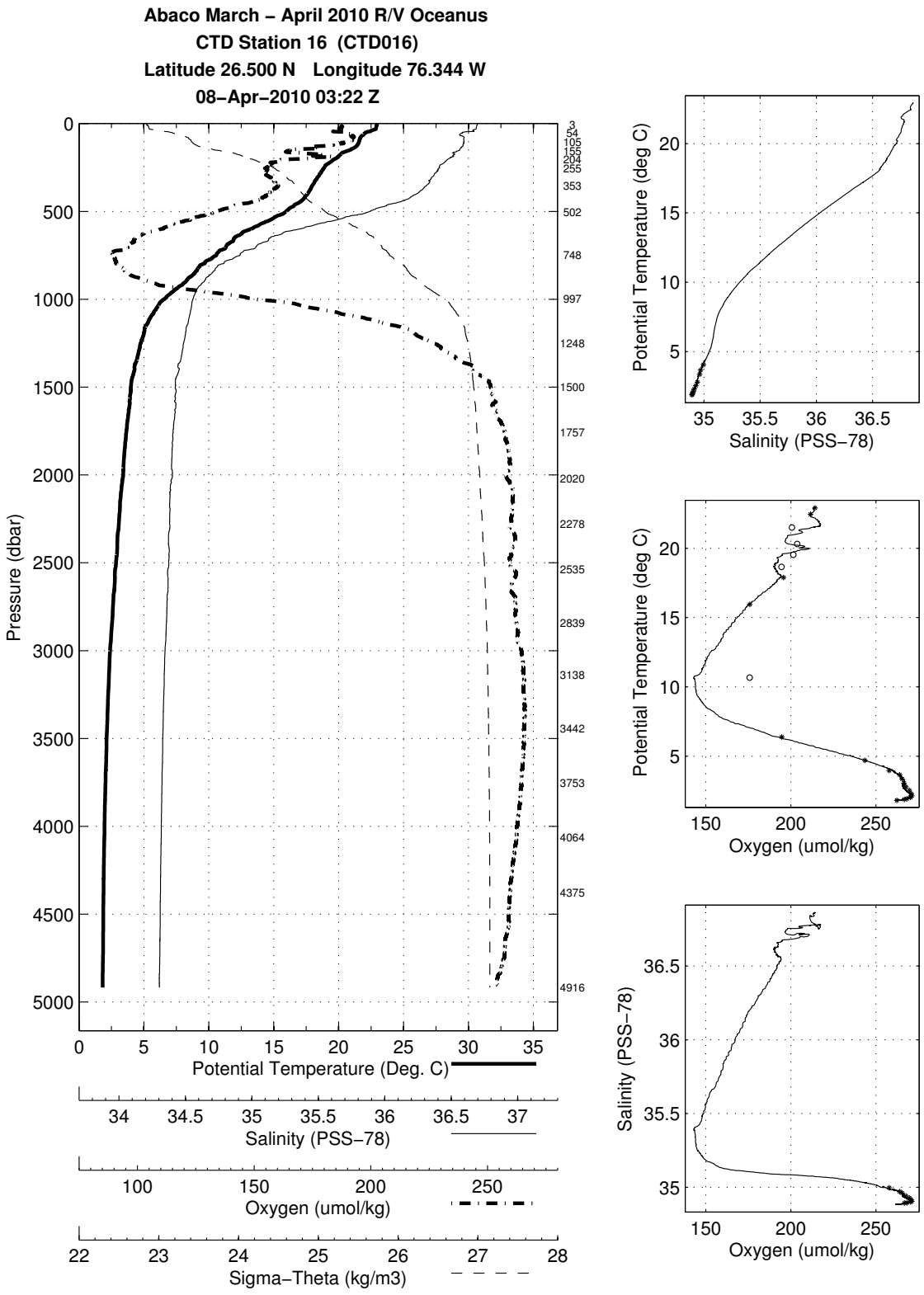
Pressure	Niskin	Temp90	PoTemp90	Salinity	Oxygen
dbar		°C	°C	PSS-78	μmol·kg^{-1}
4893	1	2.275	1.826	34.876	263.3
4383	2	2.295	1.908	34.884	267.2
4072	3	2.327	1.975	34.905	271.1
3761	4	2.378	2.060	34.893	270.1
3451	5	2.455	2.169	34.899	271.1
3142	6	2.612	2.355	34.909	270.7
2832	7	2.814	2.585	34.922	268.0
2523	8	3.051	2.848	34.933	266.8
2268	9	3.282	3.100	34.945	265.3
2014	10	3.445	3.284	34.942	266.9
1761	11	3.739	3.598	34.957	264.8
1510	12	4.031	3.910	34.970	261.0
1262	13	4.502	4.399	34.995	252.5
1014	14	6.524	6.426	35.081	195.2
763	15	10.104	10.012	35.313	144.9
510	16	15.772	15.691	36.131	173.1
359	17	18.022	17.960	36.531	193.9
257	18	18.997	18.950	36.629	187.4
206	19	19.657	19.619	36.671	191.3
156	20	20.410	20.381	36.713	193.6
105	21	21.474	21.453	36.746	216.1
55	22	21.631	21.621	36.764	217.5
2	23	21.841	21.841	36.778	218.4


Abaco March – April 2010 R/V Oceanus
CTD Station 15 (CTD015)
Latitude 26.499 N Longitude 76.478 W
07–Apr–2010 22:42 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)

Abaco March - April 2010 R/V Oceanus
CTD Station 16 (CTD016)
Latitude 26.500N Longitude 76.344W
08-Apr-2010 03:22Z

Pressure	Temp90	PoTemp90	Salinity	Oxygen	DynHt	SigT
dbar	°C	°C	PSS-78	μmol·kg^{-1}	m^2·s^{-2}	kg·m^{-3}
1	22.947	22.946	36.849	213.8	0.003	25.352
10	22.948	22.946	36.847	214.3	0.026	25.351
20	22.896	22.892	36.843	214.0	0.052	25.363
30	22.876	22.870	36.841	213.0	0.078	25.368
50	22.090	22.080	36.753	214.8	0.129	25.528
75	21.735	21.720	36.764	217.1	0.190	25.638
100	21.598	21.579	36.766	216.3	0.249	25.679
125	21.439	21.415	36.761	210.0	0.307	25.721
150	20.921	20.892	36.741	198.2	0.364	25.849
200	19.785	19.748	36.672	202.0	0.467	26.104
250	18.939	18.894	36.614	190.8	0.561	26.283
300	18.513	18.459	36.576	191.1	0.651	26.364
400	17.665	17.596	36.472	191.9	0.822	26.500
500	16.037	15.956	36.181	175.2	0.983	26.666
600	13.311	13.226	35.744	158.1	1.125	26.923
700	11.405	11.314	35.475	147.7	1.246	27.088
800	9.596	9.502	35.257	144.6	1.354	27.237
900	8.309	8.212	35.152	154.5	1.449	27.361
1000	6.642	6.546	35.084	187.6	1.528	27.548
1100	5.612	5.514	35.062	218.9	1.590	27.663
1200	5.086	4.982	35.039	236.7	1.645	27.708
1300	4.695	4.586	35.018	246.2	1.696	27.737
1400	4.393	4.278	35.000	254.1	1.746	27.757
1500	4.113	3.991	34.976	259.8	1.794	27.768
1750	3.784	3.644	34.961	263.9	1.912	27.792
2000	3.558	3.397	34.957	264.5	2.027	27.813
2500	3.050	2.849	34.935	265.9	2.252	27.847
3000	2.627	2.384	34.912	269.2	2.468	27.869
3500	2.413	2.123	34.897	270.0	2.680	27.879
4000	2.300	1.957	34.888	267.8	2.897	27.885
4500	2.270	1.870	34.881	265.3	3.121	27.887

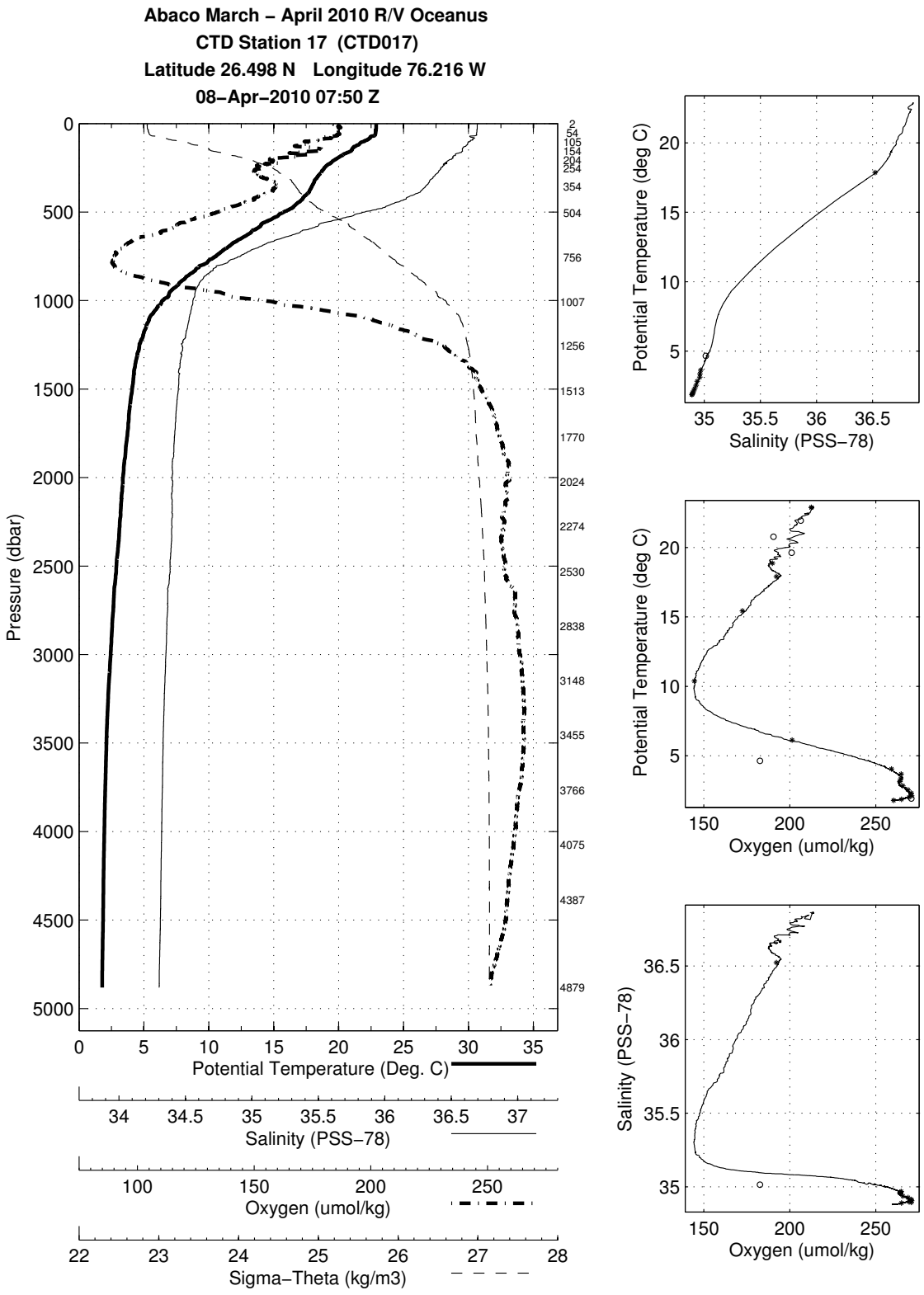
Pressure	Niskin	Temp90	PoTemp90	Salinity	Oxygen
dbar		°C	°C	PSS-78	μmol·kg^{-1}
4917	1	2.267	1.816	34.877	262.3
4376	2	2.272	1.887	34.884	266.7
4064	3	2.293	1.943	34.889	268.2
3753	4	2.356	2.040	34.894	270.2
3442	5	2.425	2.140	34.899	271.0
3139	6	2.558	2.302	34.908	270.8
2840	7	2.771	2.542	34.921	269.6
2536	8	3.003	2.800	34.934	267.5
2279	9	3.248	3.066	34.943	266.4
2020	10	3.520	3.358	34.955	265.3
1757	11	3.803	3.661	34.964	263.9
1500	12	4.182	4.059	34.991	257.7
1248	13	4.826	4.720	35.027	243.4
997	14	6.474	6.379	35.082	194.6
749	15	10.791	10.696	36.177	175.7
503	16	16.004	15.923	36.176	175.8
354	17	17.954	17.893	36.523	195.6
255	18	18.710	18.665	36.598	194.5
204	19	19.591	19.553	36.728	201.4
156	20	20.436	20.406	36.721	203.7
105	21	21.606	21.586	36.802	200.6
54	22	22.470	22.459	36.829	211.5
4	23	22.886	22.885	36.837	214.2


Abaco March – April 2010 R/V Oceanus
CTD Station 16 (CTD016)
Latitude 26.500 N Longitude 76.344 W
08–Apr–2010 03:22 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)

Abaco March - April 2010 R/V Oceanus
CTD Station 17 (CTD017)
Latitude 26.498N Longitude 76.216W
08-Apr-2010 07:50Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	22.887	22.887	36.850	211.8	0.003	25.371
10	22.894	22.892	36.849	212.8	0.026	25.368
20	22.895	22.890	36.849	213.5	0.052	25.369
30	22.890	22.884	36.849	213.5	0.078	25.370
50	22.850	22.840	36.846	213.5	0.130	25.380
75	22.480	22.465	36.806	209.9	0.195	25.458
100	22.003	21.983	36.806	203.7	0.257	25.596
125	21.381	21.356	36.780	200.4	0.316	25.752
150	21.037	21.008	36.757	208.5	0.372	25.830
200	19.852	19.815	36.692	191.1	0.477	26.102
250	18.950	18.905	36.624	189.4	0.572	26.288
300	18.414	18.361	36.577	190.0	0.661	26.390
400	17.598	17.529	36.460	190.7	0.831	26.507
500	15.857	15.777	36.148	176.2	0.991	26.682
600	13.620	13.533	35.789	161.7	1.133	26.895
700	11.537	11.446	35.488	147.5	1.258	27.073
800	9.560	9.466	35.249	144.8	1.366	27.237
900	7.820	7.726	35.121	160.0	1.458	27.410
1000	6.516	6.421	35.082	190.3	1.533	27.563
1100	5.506	5.408	35.058	222.7	1.595	27.673
1200	5.029	4.926	35.037	237.6	1.649	27.713
1300	4.619	4.510	35.011	249.1	1.700	27.740
1400	4.339	4.224	34.993	255.0	1.749	27.757
1500	4.212	4.089	34.992	256.9	1.798	27.770
1750	3.873	3.731	34.970	262.3	1.916	27.790
2000	3.542	3.381	34.953	265.2	2.032	27.811
2500	3.072	2.871	34.940	264.1	2.257	27.849
3000	2.677	2.433	34.914	268.7	2.474	27.867
3500	2.402	2.112	34.897	269.9	2.686	27.880
4000	2.289	1.947	34.887	267.2	2.902	27.886
4500	2.250	1.850	34.879	264.3	3.125	27.887

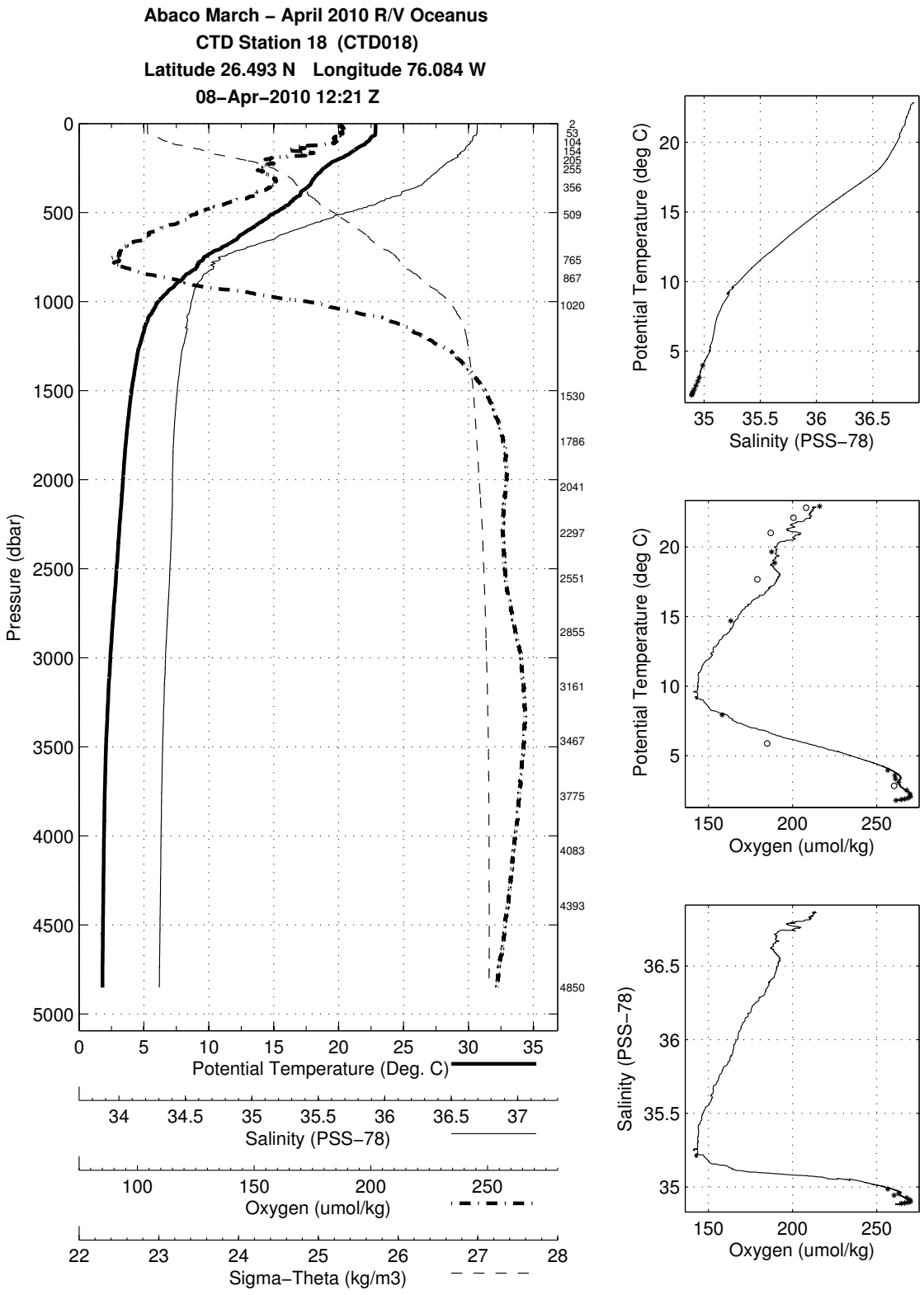
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
4880	1	2.229	1.784	34.872	260.3
4387	2	2.252	1.866	34.881	265.0
4075	3	2.276	1.925	34.912	270.7
3766	4	2.323	2.006	34.891	269.3
3455	5	2.415	2.129	34.898	270.8
3148	6	2.561	2.304	34.908	270.7
2838	7	2.772	2.543	34.921	268.8
2531	8	3.030	2.826	34.937	265.7
2275	9	3.317	3.133	34.951	264.0
2024	10	3.519	3.357	34.957	264.4
1770	11	3.764	3.622	34.957	264.7
1513	12	4.114	3.991	34.981	259.1
1256	13	4.759	4.653	35.089	182.6
1008	14	6.231	6.137	35.077	201.3
756	15	10.461	10.367	35.355	144.6
505	16	15.558	15.478	36.101	172.5
355	17	17.923	17.861	36.513	192.2
254	18	18.912	18.866	36.619	189.9
204	19	19.653	19.615	36.666	201.0
155	20	20.797	20.767	36.751	190.6
105	21	21.924	21.903	36.796	206.3
54	22	22.893	22.882	36.837	212.5
2	23	22.885	22.884	36.836	212.5


Abaco March – April 2010 R/V Oceanus
CTD Station 17 (CTD017)
Latitude 26.498 N Longitude 76.216 W
08–Apr–2010 07:50 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)

Abaco March - April 2010 R/V Oceanus
CTD Station 18 (CTD018)
Latitude 26.493N Longitude 76.084W
08-Apr-2010 12:21Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	22.836	22.836	36.849	212.4	0.003	25.384
10	22.836	22.834	36.848	212.4	0.026	25.384
20	22.839	22.835	36.848	213.0	0.052	25.384
30	22.841	22.835	36.848	213.4	0.078	25.384
50	22.842	22.832	36.847	213.0	0.130	25.384
75	22.531	22.515	36.821	211.1	0.195	25.456
100	22.276	22.256	36.809	210.9	0.258	25.521
125	21.796	21.771	36.787	202.2	0.319	25.641
150	21.224	21.195	36.769	197.4	0.377	25.787
200	20.046	20.008	36.704	189.3	0.484	26.060
250	18.889	18.844	36.620	188.3	0.579	26.300
300	18.248	18.195	36.559	191.2	0.667	26.418
400	17.105	17.038	36.373	185.8	0.833	26.560
500	15.153	15.076	36.031	167.8	0.987	26.751
600	13.101	13.016	35.709	155.3	1.124	26.939
700	11.054	10.965	35.414	144.3	1.245	27.104
800	9.203	9.112	35.207	143.2	1.348	27.262
900	7.564	7.472	35.109	165.9	1.436	27.438
1000	6.189	6.096	35.073	202.4	1.508	27.598
1100	5.411	5.315	35.051	227.0	1.567	27.678
1200	4.955	4.853	35.037	238.8	1.620	27.722
1300	4.593	4.485	35.011	248.2	1.670	27.743
1400	4.372	4.257	34.999	253.5	1.719	27.758
1500	4.157	4.035	34.986	257.6	1.767	27.771
1750	3.797	3.656	34.966	262.7	1.885	27.794
2000	3.548	3.387	34.957	264.3	2.000	27.814
2500	3.087	2.886	34.941	263.8	2.224	27.848
3000	2.655	2.412	34.914	268.8	2.440	27.868
3500	2.365	2.076	34.895	269.6	2.652	27.882
4000	2.264	1.923	34.885	266.9	2.865	27.886
4500	2.241	1.842	34.879	263.8	3.087	27.887

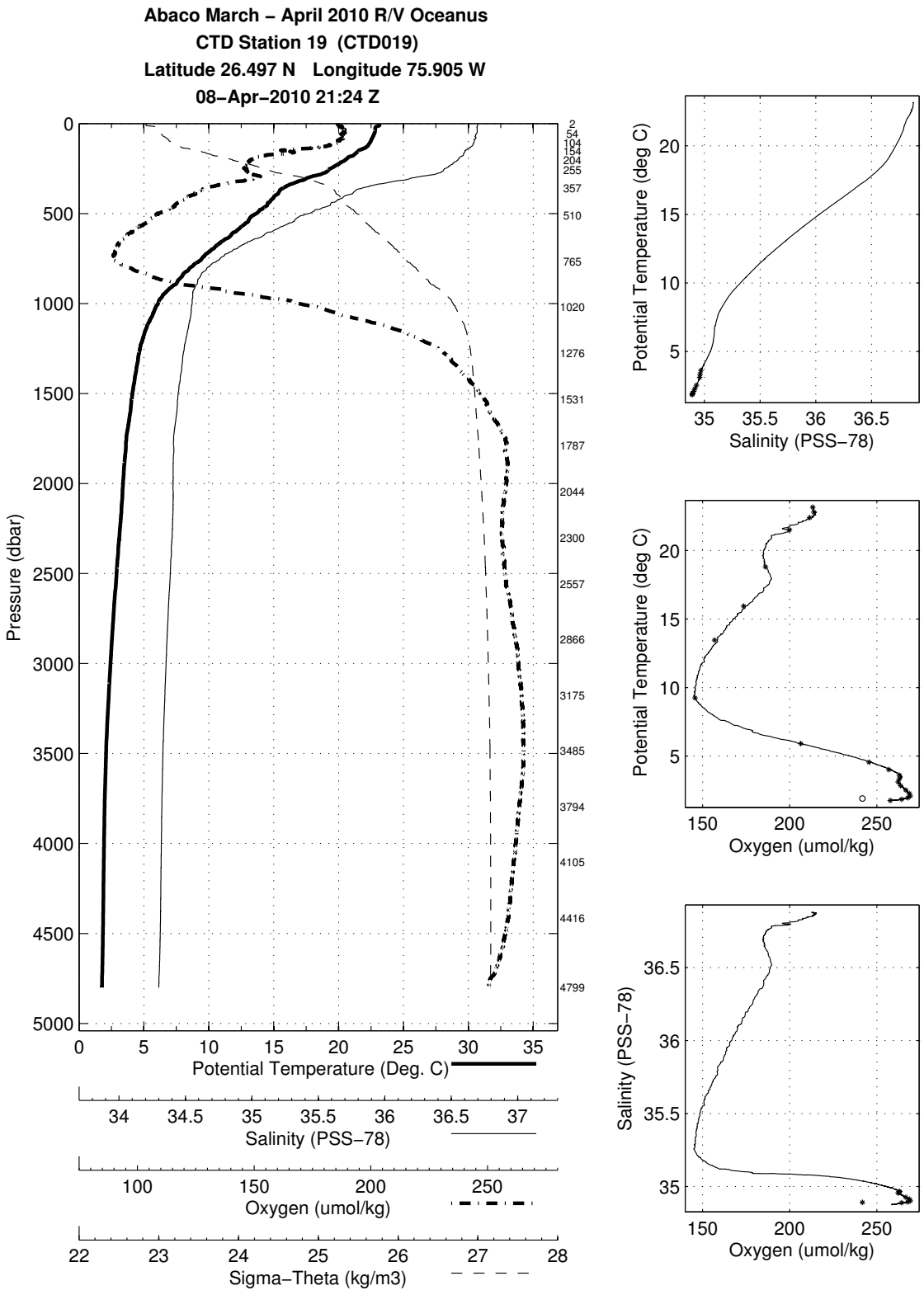
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
4851	1	2.244	1.802	34.875	261.4
4393	2	2.245	1.858	34.881	264.5
4083	3	2.260	1.909	34.885	266.7
3776	4	2.295	1.978	34.890	268.6
3468	5	2.371	2.086	34.896	270.1
3162	6	2.525	2.268	34.906	269.8
2856	7	2.765	2.534	34.922	267.8
2551	8	3.045	2.839	34.939	260.3
2297	9	3.292	3.107	34.952	263.0
2041	10	3.508	3.344	34.956	261.1
1786	11	3.753	3.610	34.964	260.8
1530	12	4.101	3.976	34.983	256.6
1020	13	5.986	5.892	35.073	184.9
867	14	8.017	7.925	35.135	158.2
765	15	9.613	9.523	35.248	135.2
510	16	14.787	14.709	35.972	163.2
357	17	17.750	17.688	36.489	179.1
256	18	18.920	18.874	36.622	189.4
205	19	19.718	19.680	36.689	187.6
154	20	21.023	20.994	36.748	187.1
104	21	22.119	22.098	36.806	200.6
54	22	22.826	22.815	36.839	208.0
2	23	22.907	22.906	36.843	216.1


Abaco March – April 2010 R/V Oceanus
CTD Station 18 (CTD018)
Latitude 26.493 N Longitude 76.084 W
08–Apr–2010 12:21 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)

Abaco March - April 2010 R/V Oceanus
CTD Station 19 (CTD019)
Latitude 26.497N Longitude 75.905W
08-Apr-2010 21:24Z

Pressure	Temp90	PoTemp90	Salinity	Oxygen	DynHt	SigT
dbar	°C	°C	PSS-78	μmol·kg^{-1}	m^2·s^{-2}	kg·m^{-3}
1	23.157	23.156	36.864	212.8	0.003	25.302
10	23.155	23.153	36.863	213.2	0.027	25.302
20	22.843	22.839	36.858	214.4	0.053	25.390
30	22.828	22.822	36.859	214.8	0.079	25.396
50	22.799	22.788	36.859	215.2	0.130	25.406
75	22.642	22.627	36.848	214.3	0.195	25.444
100	22.487	22.467	36.842	213.7	0.258	25.485
125	22.266	22.241	36.827	209.5	0.321	25.538
150	21.574	21.544	36.784	196.9	0.382	25.702
200	20.558	20.520	36.738	186.7	0.494	25.949
250	19.424	19.379	36.660	185.3	0.595	26.193
300	17.737	17.686	36.470	188.3	0.685	26.476
400	15.163	15.101	36.036	168.7	0.836	26.749
500	13.734	13.661	35.806	158.5	0.973	26.882
600	12.167	12.086	35.577	150.7	1.098	27.021
700	10.283	10.198	35.337	146.3	1.210	27.181
800	8.656	8.568	35.173	150.1	1.308	27.322
900	7.335	7.244	35.100	169.1	1.393	27.463
1000	6.173	6.080	35.078	201.3	1.461	27.604
1100	5.527	5.429	35.064	222.4	1.520	27.675
1200	4.995	4.893	35.040	238.0	1.574	27.719
1300	4.664	4.555	35.020	246.9	1.624	27.742
1400	4.435	4.319	35.006	251.5	1.674	27.757
1500	4.237	4.115	34.992	256.0	1.722	27.768
1750	3.781	3.641	34.963	263.7	1.841	27.794
2000	3.551	3.390	34.960	263.8	1.956	27.816
2500	3.092	2.890	34.942	263.4	2.180	27.849
3000	2.667	2.424	34.916	267.5	2.396	27.869
3500	2.371	2.082	34.896	269.0	2.607	27.882
4000	2.266	1.924	34.886	266.6	2.821	27.886
4500	2.238	1.839	34.878	263.6	3.043	27.887

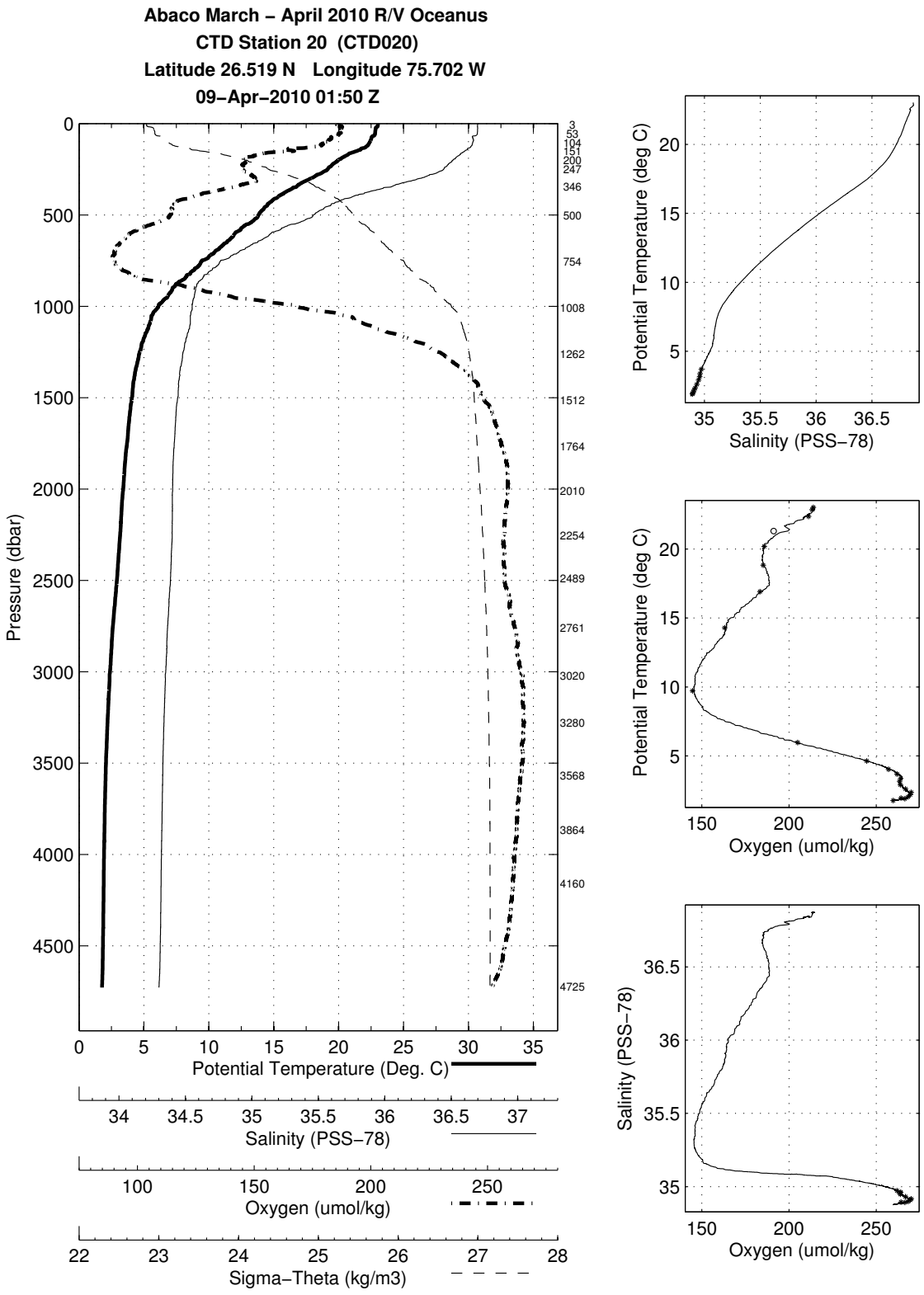
Pressure	Niskin	Temp90	PoTemp90	Salinity	Oxygen
dbar		°C	°C	PSS-78	μmol·kg^{-1}
4800	1	2.199	1.764	34.870	257.7
4416	2	2.246	1.857	34.881	264.2
4105	3	2.259	1.905	35.031	241.8
3795	4	2.286	1.967	34.889	267.8
3485	5	2.377	2.089	34.896	269.2
3176	6	2.547	2.288	34.908	268.7
2866	7	2.767	2.535	34.922	266.7
2558	8	3.061	2.854	34.940	263.7
2301	9	3.307	3.121	34.955	262.2
2044	10	3.511	3.347	34.959	262.9
1788	11	3.760	3.616	34.962	262.9
1532	12	4.147	4.022	34.987	256.9
1276	13	4.662	4.555	35.021	245.5
1021	14	6.028	5.934	35.074	206.3
766	15	9.340	9.252	35.230	145.6
511	16	13.557	13.483	35.782	156.9
357	17	15.961	15.904	36.175	173.6
256	18	18.864	18.818	36.617	186.1
205	19	20.314	20.492	−999.000	NaN
155	20	21.593	21.563	36.788	199.9
105	21	22.420	22.399	36.835	211.4
54	22	22.786	22.775	36.853	213.9
2	23	23.105	23.105	36.859	213.2


Abaco March – April 2010 R/V Oceanus
CTD Station 19 (CTD019)
Latitude 26.497 N Longitude 75.905 W
08–Apr–2010 21:24 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)

Abaco March - April 2010 R/V Oceanus
CTD Station 20 (CTD020)
Latitude 26.519N Longitude 75.702W
09-Apr-2010 01:50Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	23.031	23.030	36.858	212.9	0.003	25.335
10	23.026	23.024	36.857	213.9	0.026	25.335
20	22.915	22.911	36.857	214.4	0.053	25.369
30	22.851	22.845	36.857	213.8	0.078	25.388
50	22.826	22.815	36.856	214.2	0.130	25.396
75	22.558	22.542	36.826	211.5	0.195	25.451
100	22.433	22.412	36.829	209.7	0.258	25.491
125	22.165	22.140	36.816	207.7	0.321	25.559
150	21.436	21.406	36.777	200.3	0.381	25.736
200	20.030	19.993	36.705	185.1	0.488	26.065
250	19.191	19.146	36.645	184.8	0.584	26.241
300	17.908	17.856	36.497	188.4	0.673	26.455
400	15.401	15.339	36.077	169.8	0.828	26.727
500	13.883	13.810	35.833	163.0	0.965	26.871
600	12.107	12.027	35.570	150.7	1.092	27.027
700	10.563	10.476	35.371	146.3	1.205	27.158
800	8.979	8.889	35.202	148.3	1.305	27.294
900	7.295	7.204	35.099	170.6	1.391	27.468
1000	6.209	6.116	35.078	201.1	1.461	27.600
1100	5.516	5.419	35.065	221.9	1.520	27.677
1200	4.947	4.845	35.033	238.2	1.574	27.719
1300	4.643	4.534	35.016	247.4	1.624	27.741
1400	4.355	4.240	34.998	254.0	1.673	27.759
1500	4.189	4.067	34.988	256.9	1.721	27.769
1750	3.838	3.697	34.967	262.6	1.840	27.791
2000	3.563	3.402	34.957	264.5	1.956	27.812
2500	3.118	2.916	34.943	263.8	2.181	27.847
3000	2.627	2.384	34.913	268.5	2.396	27.871
3500	2.365	2.077	34.896	268.9	2.606	27.882
4000	2.267	1.925	34.886	266.6	2.819	27.887
4500	2.239	1.840	34.878	263.7	3.042	27.887

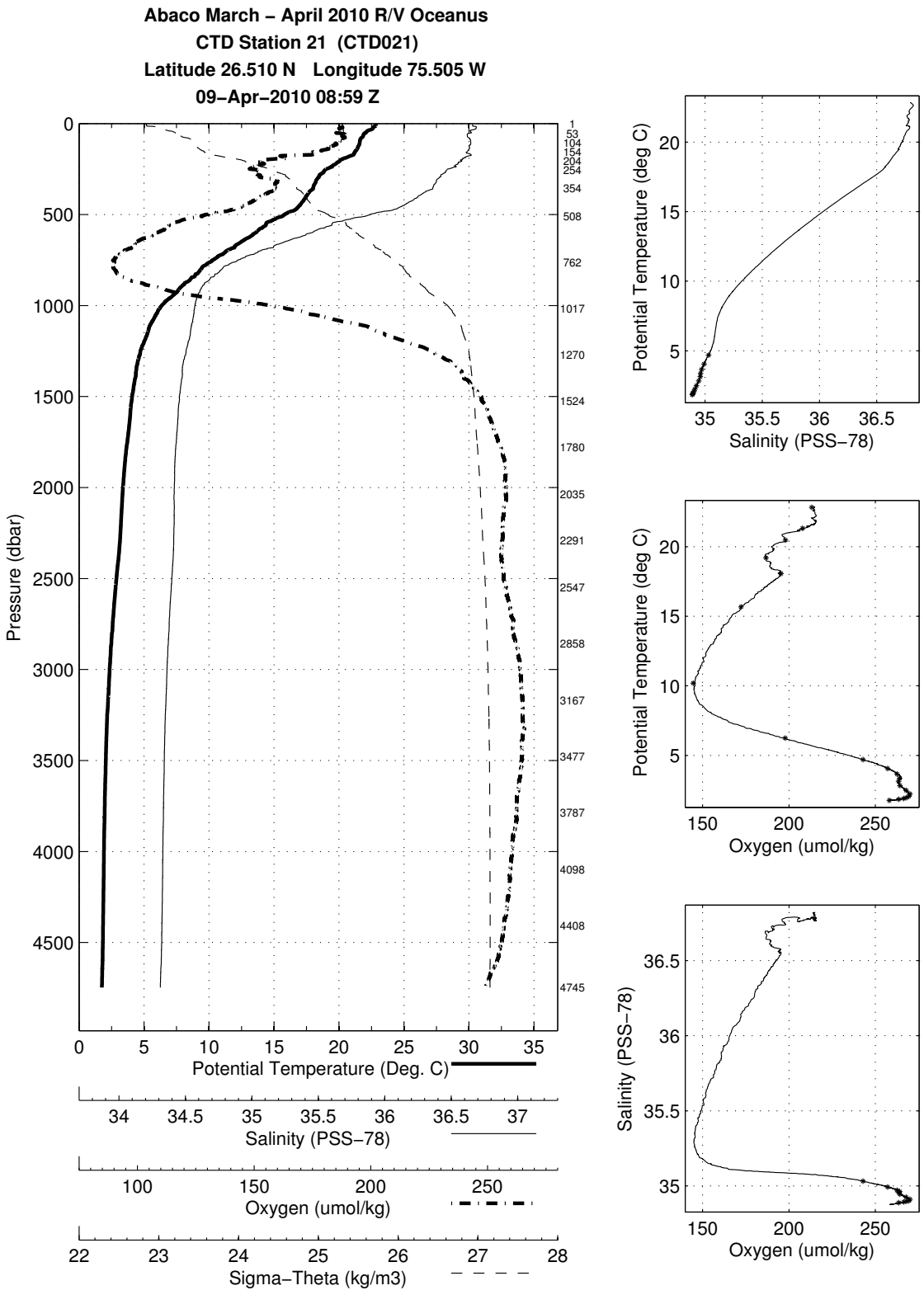
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
4725	1	2.197	1.772	34.872	259.7
4160	2	2.259	1.900	34.885	266.4
3865	3	2.274	1.947	34.960	264.2
3568	4	2.334	2.038	34.896	268.2
3280	5	2.459	2.191	34.903	269.5
3020	6	2.594	2.350	34.911	270.0
2761	7	2.824	2.602	34.926	266.8
2490	8	3.111	2.911	34.945	263.9
2254	9	3.340	3.158	34.955	263.4
2011	10	3.541	3.379	34.958	264.1
1765	11	3.834	3.692	34.968	261.9
1512	12	4.164	4.041	34.987	257.1
1262	13	4.742	4.635	35.021	244.5
1008	14	6.047	5.954	35.077	204.9
755	15	9.758	9.669	35.273	144.7
500	16	14.367	14.292	35.901	163.1
346	17	16.998	16.940	36.352	183.3
248	18	18.907	18.863	36.626	185.1
200	19	20.222	20.185	36.719	185.8
151	20	21.351	21.322	36.783	191.2
104	21	22.396	22.375	36.834	211.2
54	22	22.822	22.811	36.833	213.2
4	23	22.942	22.942	36.839	213.9


Abaco March – April 2010 R/V Oceanus
CTD Station 20 (CTD020)
Latitude 26.519 N Longitude 75.702 W
09–Apr–2010 01:50 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)

Abaco March - April 2010 R/V Oceanus
CTD Station 21 (CTD021)
Latitude 26.510N Longitude 75.505W
09-Apr-2010 08:59Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	22.835	22.835	36.785	214.5	0.003	25.336
10	22.837	22.835	36.783	214.5	0.026	25.335
20	22.634	22.630	36.806	214.7	0.052	25.411
30	22.560	22.554	36.800	214.6	0.078	25.428
50	22.085	22.075	36.776	213.5	0.128	25.547
75	21.815	21.801	36.754	215.6	0.188	25.608
100	21.618	21.598	36.772	214.1	0.247	25.678
125	21.509	21.485	36.763	210.9	0.306	25.703
150	21.314	21.284	36.754	208.7	0.364	25.751
200	20.139	20.102	36.710	191.2	0.473	26.040
250	19.038	18.993	36.631	186.8	0.571	26.270
300	18.431	18.378	36.577	190.9	0.660	26.386
400	17.539	17.470	36.449	190.3	0.831	26.513
500	15.880	15.799	36.154	173.5	0.992	26.682
600	13.670	13.583	35.795	158.1	1.133	26.889
700	11.426	11.335	35.478	148.8	1.258	27.086
800	9.481	9.388	35.246	145.6	1.365	27.248
900	7.883	7.789	35.122	158.7	1.457	27.402
1000	6.463	6.367	35.082	193.4	1.533	27.569
1100	5.631	5.532	35.064	218.9	1.594	27.662
1200	5.105	5.002	35.042	234.8	1.650	27.709
1300	4.642	4.534	35.013	246.9	1.701	27.739
1400	4.435	4.319	35.003	252.0	1.750	27.754
1500	4.197	4.075	34.987	257.2	1.799	27.768
1750	3.858	3.716	34.968	262.4	1.918	27.790
2000	3.537	3.377	34.956	264.7	2.034	27.814
2500	3.080	2.878	34.941	264.0	2.259	27.849
3000	2.594	2.353	34.911	269.0	2.473	27.872
3500	2.345	2.056	34.894	269.5	2.681	27.883
4000	2.257	1.915	34.885	266.5	2.894	27.886
4500	2.231	1.832	34.878	263.5	3.116	27.887

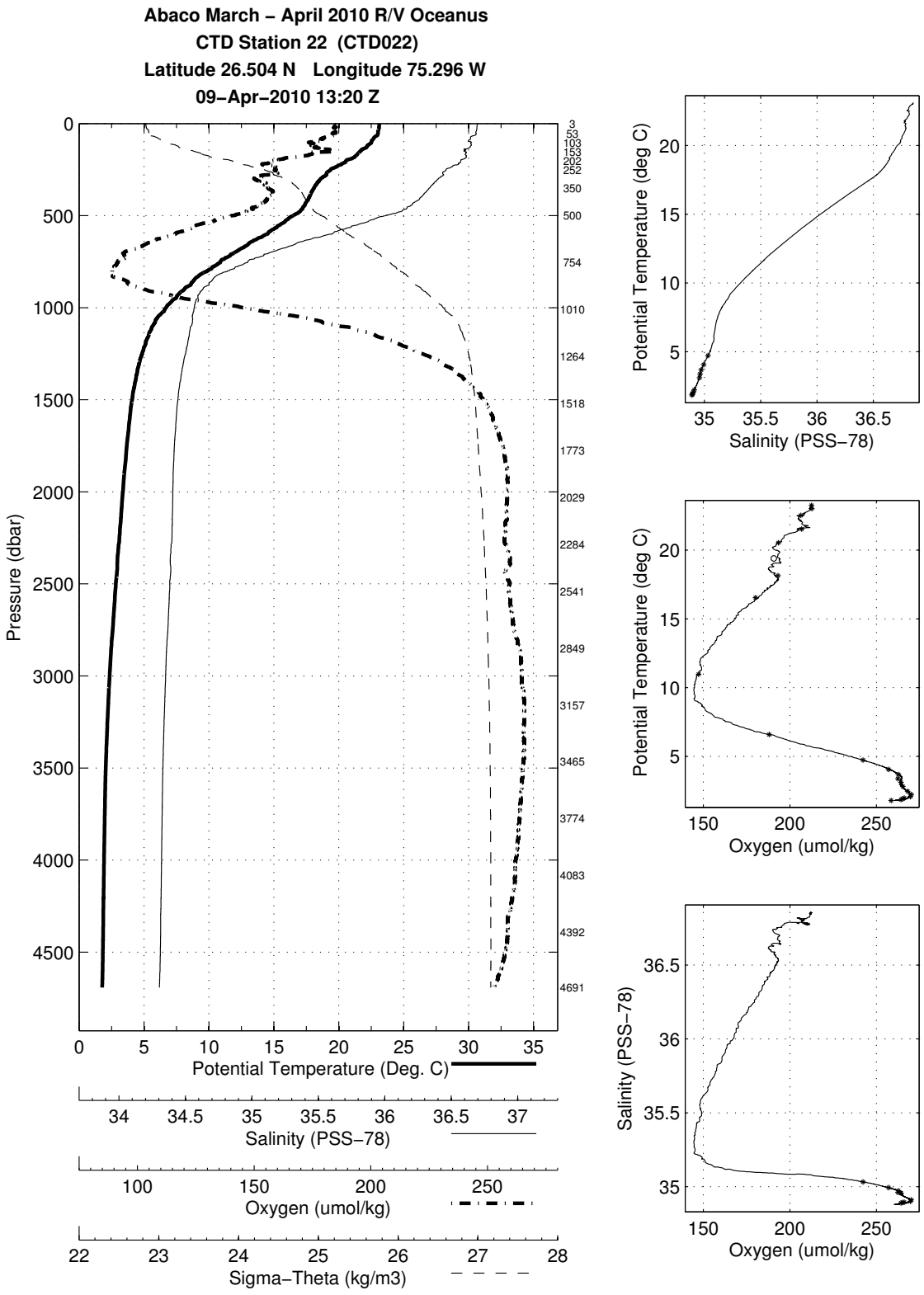
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
4745	1	2.190	1.763	34.871	258.1
4409	2	2.235	1.847	34.880	263.5
4098	3	2.255	1.902	34.885	266.5
3787	4	2.291	1.973	34.890	268.1
3477	5	2.352	2.066	34.895	269.5
3168	6	2.493	2.236	34.904	270.0
2858	7	2.714	2.484	34.920	267.8
2548	8	3.037	2.832	34.939	264.2
2291	9	3.324	3.139	34.953	263.5
2035	10	3.534	3.370	34.957	264.1
1780	11	3.798	3.654	34.965	262.6
1525	12	4.172	4.047	34.987	257.2
1270	13	4.788	4.681	35.024	242.9
1017	14	6.322	6.226	35.079	197.8
762	15	10.239	10.146	35.327	144.6
508	16	15.722	15.641	36.123	172.2
355	17	18.157	18.094	36.549	195.4
255	18	19.246	19.199	36.654	186.7
204	19	20.521	20.482	36.730	198.0
154	20	21.351	21.321	36.757	207.8
104	21	21.596	21.575	36.769	NaN
54	22	22.069	22.058	36.843	NaN
2	23	22.931	22.932	−999.000	NaN


Abaco March – April 2010 R/V Oceanus
CTD Station 21 (CTD021)
Latitude 26.510 N Longitude 75.505 W
09–Apr–2010 08:59 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS–78)
Oxygen (umol/kg)
Sigma–Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS–78)
Oxygen (umol/kg)

Abaco March - April 2010 R/V Oceanus
CTD Station 22 (CTD022)
Latitude 26.504N Longitude 75.296W
09-Apr-2010 13:20Z

Pressure	Temp90	PoTemp90	Salinity	Oxygen	DynHt	SigT
dbar	°C	°C	PSS-78	μmol·kg^{-1}	m^2·s^{-2}	kg·m^{-3}
1	23.121	23.121	36.842	212.0	0.003	25.296
10	23.116	23.114	36.841	212.0	0.027	25.297
20	23.110	23.106	36.840	212.1	0.053	25.299
30	23.079	23.073	36.839	212.4	0.080	25.308
50	23.029	23.019	36.833	212.4	0.133	25.319
75	22.746	22.730	36.800	208.9	0.200	25.378
100	22.539	22.519	36.804	204.7	0.265	25.442
125	22.180	22.155	36.798	206.4	0.328	25.541
150	21.677	21.648	36.761	211.4	0.389	25.656
200	20.636	20.598	36.742	194.6	0.503	25.930
250	19.421	19.375	36.650	194.2	0.605	26.185
300	18.663	18.609	36.600	187.6	0.698	26.345
400	17.795	17.726	36.494	192.3	0.871	26.485
500	16.565	16.483	36.273	180.7	1.036	26.615
600	14.599	14.508	35.939	163.6	1.186	26.804
700	12.070	11.976	35.559	148.3	1.317	27.028
800	9.948	9.852	35.294	144.5	1.430	27.207
900	8.220	8.123	35.142	154.4	1.525	27.367
1000	6.786	6.688	35.088	184.1	1.604	27.531
1100	5.752	5.653	35.070	213.3	1.668	27.652
1200	5.203	5.099	35.047	231.9	1.725	27.701
1300	4.753	4.643	35.022	244.4	1.777	27.734
1400	4.455	4.339	35.003	251.7	1.827	27.753
1500	4.208	4.085	34.988	256.9	1.876	27.767
1750	3.817	3.676	34.966	263.0	1.994	27.793
2000	3.544	3.383	34.957	264.3	2.109	27.814
2500	3.032	2.831	34.937	265.0	2.332	27.850
3000	2.598	2.356	34.912	268.8	2.545	27.872
3500	2.345	2.056	34.894	269.1	2.754	27.882
4000	2.265	1.924	34.886	266.9	2.967	27.886
4500	2.233	1.834	34.878	263.6	3.189	27.887

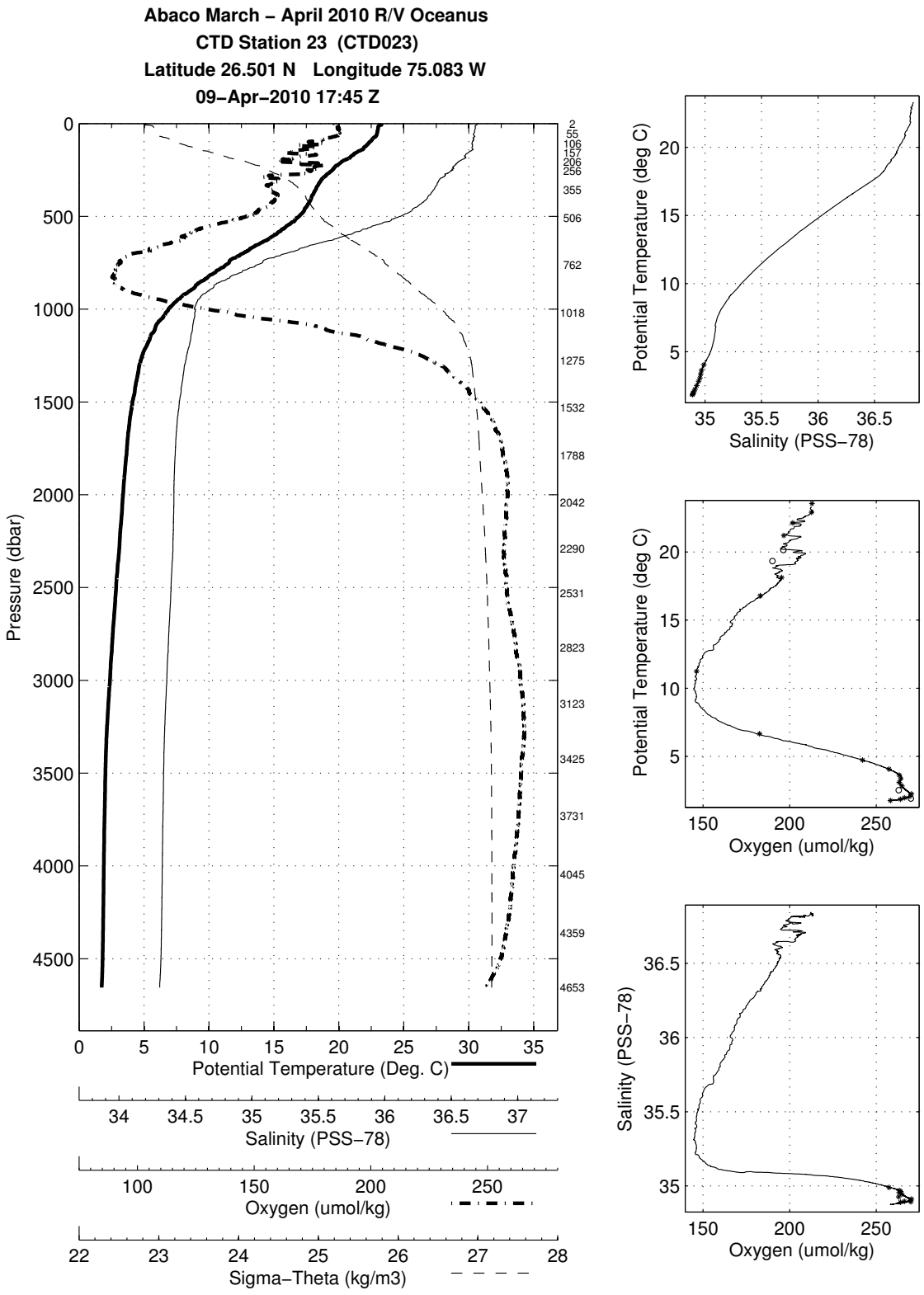
Pressure	Niskin	Temp90	PoTemp90	Salinity	Oxygen
dbar		°C	°C	PSS-78	μmol·kg^{-1}
4692	1	2.207	1.786	34.872	258.5
4393	2	2.242	1.856	34.880	264.1
4083	3	2.259	1.907	34.937	265.1
3774	4	2.277	1.960	34.888	266.1
3466	5	2.351	2.066	34.895	269.6
3158	6	2.475	2.220	34.903	270.2
2849	7	2.693	2.464	34.919	268.0
2542	8	3.004	2.800	34.934	265.2
2284	9	3.291	3.107	34.955	264.1
2030	10	3.534	3.371	34.956	262.4
1774	11	3.821	3.678	34.966	262.7
1519	12	4.181	4.057	34.987	257.0
1265	13	4.825	4.718	35.024	242.2
1011	14	6.687	6.589	35.086	188.0
755	15	11.101	11.005	35.448	147.2
501	16	16.634	16.551	36.286	180.1
350	17	18.213	18.152	36.556	193.1
252	18	19.532	19.486	36.669	190.7
203	19	20.627	20.589	36.745	193.4
153	20	21.595	21.565	36.777	206.8
104	21	22.614	22.593	36.802	206.4
54	22	23.042	23.031	36.843	212.6
3	23	23.262	23.262	36.843	212.4


Abaco March – April 2010 R/V Oceanus
CTD Station 22 (CTD022)
Latitude 26.504 N Longitude 75.296 W
09–Apr–2010 13:20 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)

Abaco March - April 2010 R/V Oceanus
CTD Station 23 (CTD023)
Latitude 26.501N Longitude 75.083W
09-Apr-2010 17:45Z

Pressure	Temp90	PoTemp90	Salinity	Oxygen	DynHt	SigT
dbar	°C	°C	PSS-78	μmol·kg^{-1}	m^2·s^{-2}	kg·m^{-3}
1	23.267	23.266	36.829	212.0	0.003	25.244
10	23.111	23.109	36.820	212.5	0.027	25.283
20	23.034	23.030	36.819	213.3	0.054	25.305
30	23.016	23.010	36.817	213.5	0.080	25.309
50	22.963	22.953	36.812	213.6	0.134	25.322
75	22.705	22.690	36.806	211.0	0.200	25.394
100	22.360	22.339	36.801	206.1	0.264	25.490
125	22.011	21.986	36.799	206.6	0.326	25.590
150	21.519	21.489	36.787	199.2	0.386	25.720
200	20.379	20.341	36.725	195.8	0.497	25.987
250	19.573	19.527	36.681	204.4	0.598	26.170
300	18.734	18.680	36.599	195.2	0.691	26.326
400	17.960	17.891	36.524	194.2	0.866	26.467
500	17.022	16.938	36.355	185.5	1.033	26.569
600	15.147	15.053	36.029	167.3	1.190	26.754
700	12.712	12.615	35.649	150.9	1.327	26.973
800	10.622	10.523	35.376	145.5	1.445	27.154
900	8.661	8.561	35.171	149.1	1.546	27.322
1000	6.982	6.883	35.084	173.5	1.629	27.501
1100	5.974	5.873	35.072	208.4	1.697	27.626
1200	5.285	5.180	35.051	229.2	1.755	27.694
1300	4.754	4.644	35.023	244.2	1.807	27.734
1400	4.494	4.377	35.007	250.9	1.857	27.752
1500	4.237	4.114	34.991	256.4	1.907	27.767
1750	3.829	3.688	34.967	263.0	2.025	27.792
2000	3.552	3.391	34.957	264.5	2.140	27.814
2500	3.055	2.854	34.939	264.3	2.364	27.850
3000	2.616	2.374	34.913	268.6	2.578	27.871
3500	2.315	2.027	34.893	268.7	2.785	27.884
4000	2.247	1.906	34.885	266.5	2.997	27.887
4500	2.212	1.813	34.876	262.4	3.218	27.887

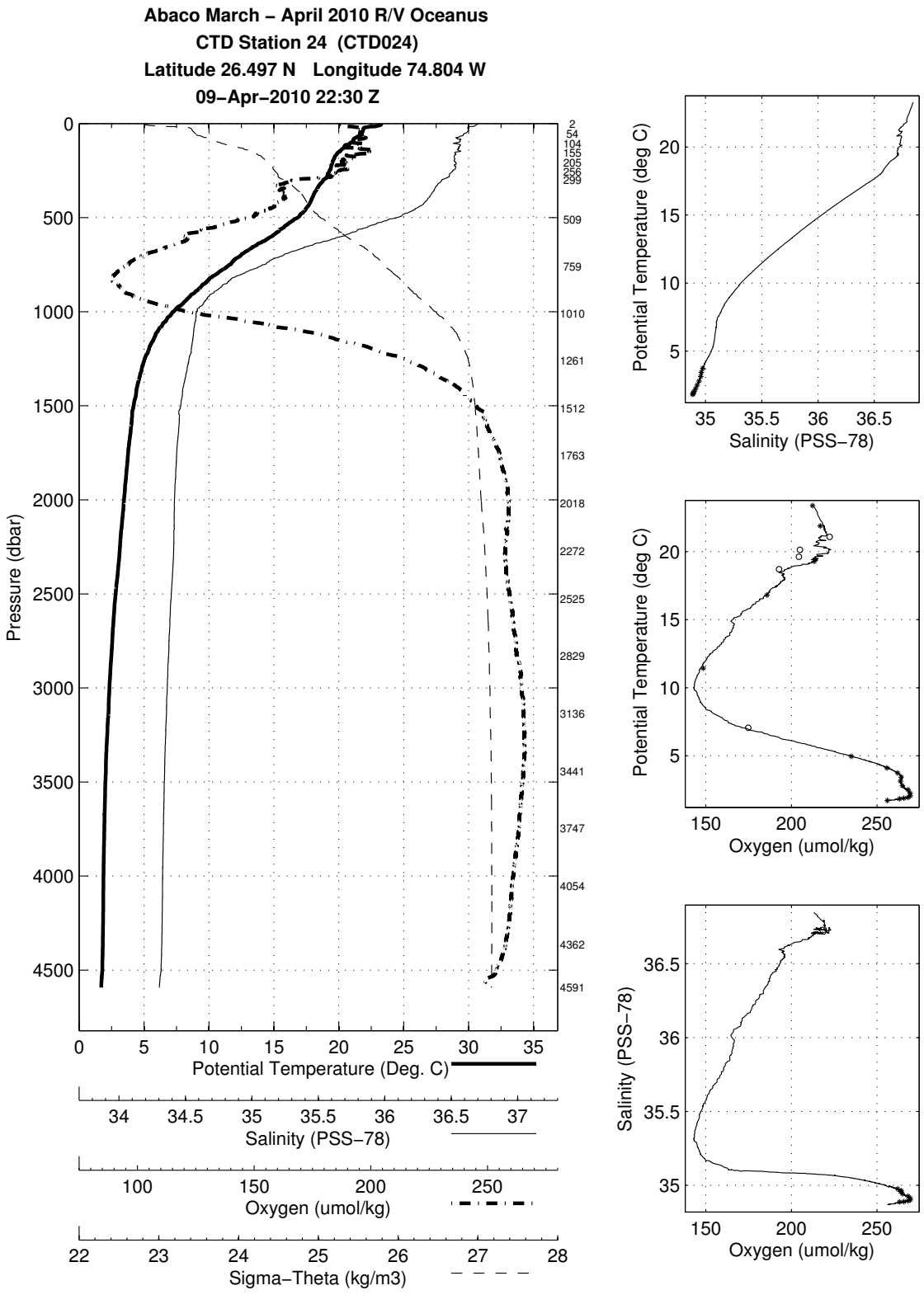
Pressure	Niskin	Temp90	PoTemp90	Salinity	Oxygen
dbar		°C	°C	PSS-78	μmol·kg^{-1}
4654	1	2.168	1.753	34.869	258.1
4360	2	2.228	1.846	34.879	263.9
4045	3	2.246	1.900	34.905	NaN
3731	4	2.276	1.964	34.888	266.2
3425	5	2.337	2.057	34.894	269.4
3124	6	2.490	2.238	34.904	270.3
2823	7	2.742	2.515	34.921	263.0
2531	8	3.029	2.826	34.937	264.8
2291	9	3.265	3.081	34.953	263.2
2043	10	3.520	3.355	34.955	264.1
1789	11	3.770	3.626	34.964	263.3
1532	12	4.162	4.037	34.986	257.4
1275	13	4.834	4.726	35.027	242.1
1018	14	6.780	6.680	35.086	182.6
763	15	11.339	11.241	35.460	146.2
507	16	16.876	16.791	36.334	183.0
356	17	18.198	18.136	36.555	195.3
256	18	19.405	19.358	36.666	190.0
207	19	20.168	20.130	36.706	196.3
157	20	21.324	21.293	36.786	196.6
107	21	22.154	22.133	36.799	201.7
56	22	22.946	22.935	36.811	212.6
2	23	23.564	23.564	36.846	212.8


Abaco March – April 2010 R/V Oceanus
CTD Station 23 (CTD023)
Latitude 26.501 N Longitude 75.083 W
09–Apr–2010 17:45 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)

Abaco March - April 2010 R/V Oceanus
CTD Station 24 (CTD024)
Latitude 26.497N Longitude 74.804W
09-Apr-2010 22:30Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	23.270	23.269	36.834	213.1	0.003	25.246
10	23.095	23.093	36.822	214.2	0.027	25.289
20	22.032	22.028	36.775	218.3	0.053	25.559
30	21.892	21.886	36.777	218.6	0.077	25.601
50	21.775	21.765	36.763	219.2	0.124	25.625
75	21.315	21.301	36.706	220.7	0.183	25.711
100	20.969	20.949	36.715	216.1	0.239	25.814
125	20.530	20.507	36.723	214.8	0.293	25.940
150	20.066	20.038	36.713	221.8	0.344	26.059
200	19.576	19.539	36.694	213.6	0.442	26.177
250	19.333	19.288	36.682	212.6	0.536	26.233
300	18.846	18.792	36.613	198.6	0.629	26.308
400	17.985	17.916	36.527	195.6	0.805	26.463
500	16.906	16.822	36.334	185.0	0.973	26.581
600	14.924	14.832	35.992	165.1	1.126	26.775
700	12.564	12.468	35.631	152.5	1.261	26.988
800	10.686	10.586	35.375	143.9	1.380	27.142
900	8.995	8.893	35.198	147.1	1.483	27.291
1000	7.341	7.239	35.092	166.8	1.571	27.457
1100	6.199	6.095	35.077	200.8	1.642	27.601
1200	5.485	5.378	35.061	223.2	1.703	27.679
1300	4.943	4.831	35.036	238.9	1.757	27.723
1400	4.583	4.466	35.012	248.7	1.808	27.745
1500	4.328	4.204	34.996	254.4	1.858	27.761
1750	3.918	3.775	34.971	261.7	1.979	27.786
2000	3.619	3.457	34.957	264.5	2.097	27.807
2500	3.021	2.820	34.938	264.8	2.322	27.852
3000	2.581	2.340	34.912	268.6	2.534	27.873
3500	2.312	2.025	34.894	268.8	2.741	27.884
4000	2.222	1.882	34.883	265.9	2.951	27.887
4500	2.187	1.789	34.873	260.7	3.172	27.886

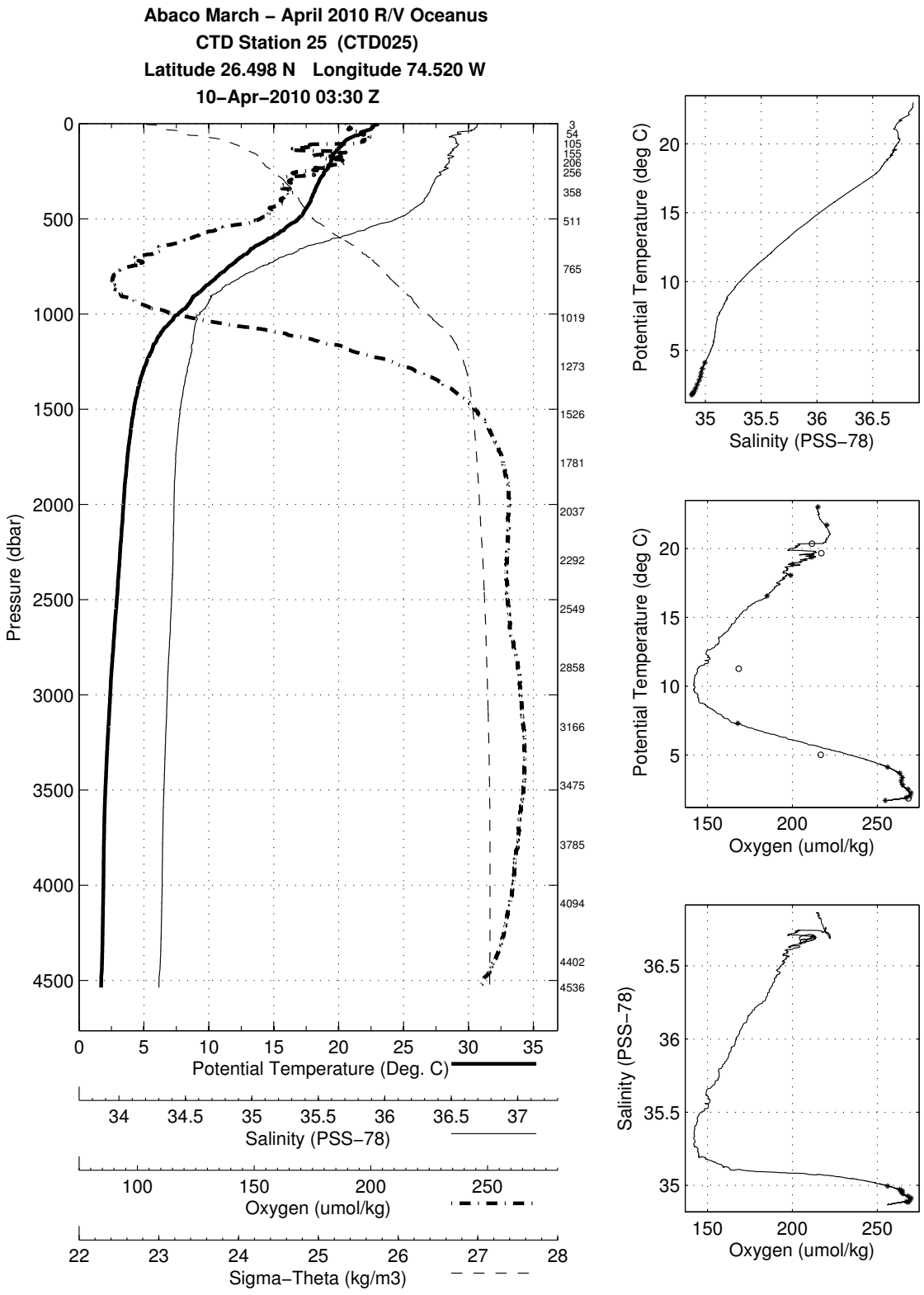
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
4591	1	2.115	1.708	34.862	256.0
4362	2	2.211	1.829	34.878	263.1
4055	3	2.222	1.875	34.883	265.7
3748	4	2.256	1.943	34.887	268.1
3441	5	2.333	2.051	34.895	269.4
3136	6	2.508	2.254	34.907	269.3
2830	7	2.726	2.499	34.920	268.1
2526	8	3.000	2.798	34.937	264.8
2272	9	3.322	3.139	34.953	263.7
2018	10	3.608	3.445	34.958	264.1
1764	11	3.877	3.734	34.970	262.0
1513	12	4.271	4.147	34.993	255.7
1262	13	5.090	4.980	35.046	235.0
1011	14	7.163	7.062	35.090	174.8
760	15	11.542	11.443	35.489	148.5
509	16	16.884	16.799	36.338	185.8
300	17	18.739	18.686	36.600	192.7
257	18	19.335	19.289	36.682	213.3
206	19	19.576	19.538	36.667	204.4
156	20	20.140	20.111	36.711	205.0
105	21	20.916	20.896	36.669	222.3
54	22	21.889	21.878	36.768	216.8
2	23	23.375	23.374	36.848	212.3


Abaco March – April 2010 R/V Oceanus
CTD Station 24 (CTD024)
Latitude 26.497 N Longitude 74.804 W
09–Apr–2010 22:30 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)

Abaco March - April 2010 R/V Oceanus
CTD Station 25 (CTD025)
Latitude 26.498N Longitude 74.520W
10-Apr-2010 03:30Z

Pressure	Temp90	PoTemp90	Salinity	Oxygen	DynHt	SigT
dbar	°C	°C	PSS-78	μmol·kg^{-1}	m^2·s^{-2}	kg·m^{-3}
1	22.996	22.995	36.851	214.3	0.003	25.340
10	22.705	22.703	36.846	215.3	0.026	25.420
20	22.623	22.619	36.841	215.3	0.051	25.441
30	22.484	22.478	36.830	214.9	0.077	25.473
50	21.701	21.691	36.724	219.6	0.125	25.615
75	20.928	20.913	36.705	221.4	0.183	25.816
100	20.434	20.415	36.719	218.4	0.236	25.962
125	20.100	20.077	36.717	201.6	0.287	26.052
150	19.760	19.732	36.683	213.8	0.336	26.117
200	19.448	19.411	36.673	212.7	0.431	26.194
250	19.010	18.965	36.630	200.5	0.525	26.277
300	18.559	18.506	36.583	196.9	0.615	26.358
400	17.932	17.863	36.517	194.0	0.788	26.469
500	16.975	16.891	36.346	187.7	0.956	26.574
600	14.883	14.790	35.978	166.6	1.111	26.772
700	12.615	12.518	35.633	149.4	1.246	26.980
800	10.816	10.715	35.386	142.4	1.365	27.128
900	9.095	8.993	35.198	144.6	1.471	27.274
1000	7.750	7.645	35.118	161.3	1.562	27.420
1100	6.395	6.290	35.080	194.7	1.637	27.578
1200	5.667	5.559	35.066	217.1	1.700	27.661
1300	5.063	4.950	35.041	235.6	1.756	27.713
1400	4.632	4.514	35.014	247.3	1.808	27.742
1500	4.357	4.233	34.997	254.2	1.858	27.759
1750	3.872	3.731	34.968	262.3	1.979	27.789
2000	3.586	3.425	34.957	264.6	2.095	27.810
2500	3.108	2.906	34.941	264.1	2.321	27.847
3000	2.647	2.404	34.915	268.1	2.538	27.870
3500	2.314	2.026	34.893	269.0	2.747	27.884
4000	2.218	1.878	34.883	265.9	2.956	27.887
4500	2.107	1.712	34.863	256.7	3.175	27.884

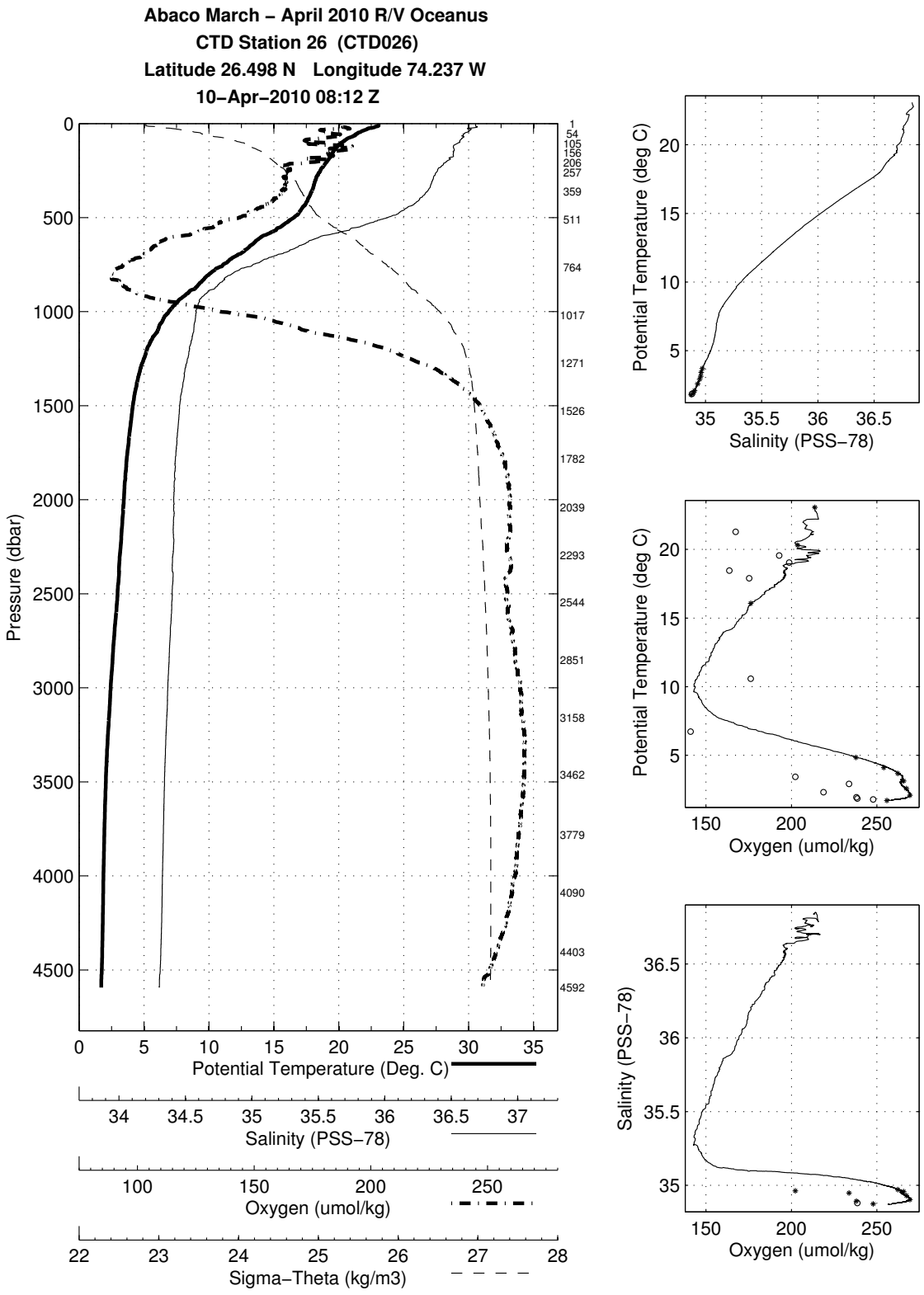
Pressure	Niskin	Temp90	PoTemp90	Salinity	Oxygen
dbar		°C	°C	PSS-78	μmol·kg^{-1}
4536	1	2.101	1.702	34.863	254.7
4402	2	2.158	1.773	34.872	NaN
4095	3	2.203	1.852	34.915	268.3
3785	4	2.227	1.910	34.886	267.1
3476	5	2.326	2.041	34.895	269.3
3166	6	2.512	2.255	34.908	269.9
2858	7	2.755	2.524	34.922	268.1
2549	8	3.046	2.840	34.940	264.9
2293	9	3.301	3.116	34.951	264.1
2037	10	3.542	3.378	34.957	264.7
1781	11	3.829	3.685	34.968	263.3
1526	12	4.239	4.114	34.991	256.1
1273	13	5.141	5.030	35.068	216.7
1019	14	7.423	7.318	35.100	167.8
765	15	11.374	11.274	36.043	168.3
511	16	16.633	16.548	36.291	185.0
359	17	18.134	18.071	36.548	199.0
257	18	18.957	18.911	36.627	200.0
207	19	19.413	19.376	36.672	211.4
156	20	19.699	19.670	36.689	217.0
105	21	20.439	20.419	36.743	211.5
54	22	21.696	21.686	36.741	220.3
3	23	23.026	23.025	36.850	215.1


Abaco March – April 2010 R/V Oceanus
CTD Station 25 (CTD025)
Latitude 26.498 N Longitude 74.520 W
10–Apr–2010 03:30 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)

Abaco March - April 2010 R/V Oceanus
CTD Station 26 (CTD026)
Latitude 26.498N Longitude 74.237W
10-Apr-2010 08:12Z

Pressure	Temp90	PoTemp90	Salinity	Oxygen	DynHt	SigT
dbar	°C	°C	PSS-78	μmol·kg^{-1}	m^2·s^{-2}	kg·m^{-3}
1	23.070	23.069	36.827	213.2	0.003	25.300
10	23.074	23.072	36.826	213.2	0.027	25.298
20	22.731	22.727	36.831	214.6	0.053	25.402
30	22.195	22.189	36.798	209.2	0.078	25.531
50	21.458	21.448	36.759	209.7	0.125	25.710
75	20.831	20.817	36.747	208.8	0.181	25.875
100	20.273	20.255	36.728	206.3	0.233	26.012
125	19.877	19.854	36.688	216.8	0.283	26.089
150	19.590	19.562	36.689	208.8	0.331	26.166
200	19.134	19.097	36.647	207.5	0.424	26.255
250	18.632	18.587	36.590	197.3	0.514	26.343
300	18.253	18.200	36.559	196.2	0.601	26.417
400	17.696	17.627	36.479	192.6	0.771	26.498
500	16.619	16.536	36.279	182.0	0.936	26.607
600	14.174	14.084	35.864	162.1	1.086	26.837
700	12.287	12.192	35.591	152.2	1.218	27.012
800	10.128	10.031	35.312	143.5	1.332	27.190
900	8.495	8.396	35.157	150.4	1.431	27.337
1000	7.012	6.913	35.092	176.1	1.513	27.503
1100	6.147	6.044	35.077	202.2	1.581	27.608
1200	5.341	5.235	35.051	227.6	1.640	27.688
1300	4.842	4.732	35.024	241.6	1.694	27.726
1400	4.516	4.399	35.008	250.0	1.745	27.750
1500	4.258	4.135	34.990	255.8	1.794	27.764
1750	3.861	3.719	34.967	262.4	1.914	27.789
2000	3.609	3.447	34.953	265.2	2.031	27.805
2500	3.166	2.963	34.944	264.2	2.260	27.844
3000	2.680	2.436	34.916	268.2	2.479	27.869
3500	2.350	2.061	34.896	269.3	2.690	27.883
4000	2.218	1.877	34.883	266.6	2.901	27.887
4500	2.148	1.751	34.868	258.7	3.120	27.885

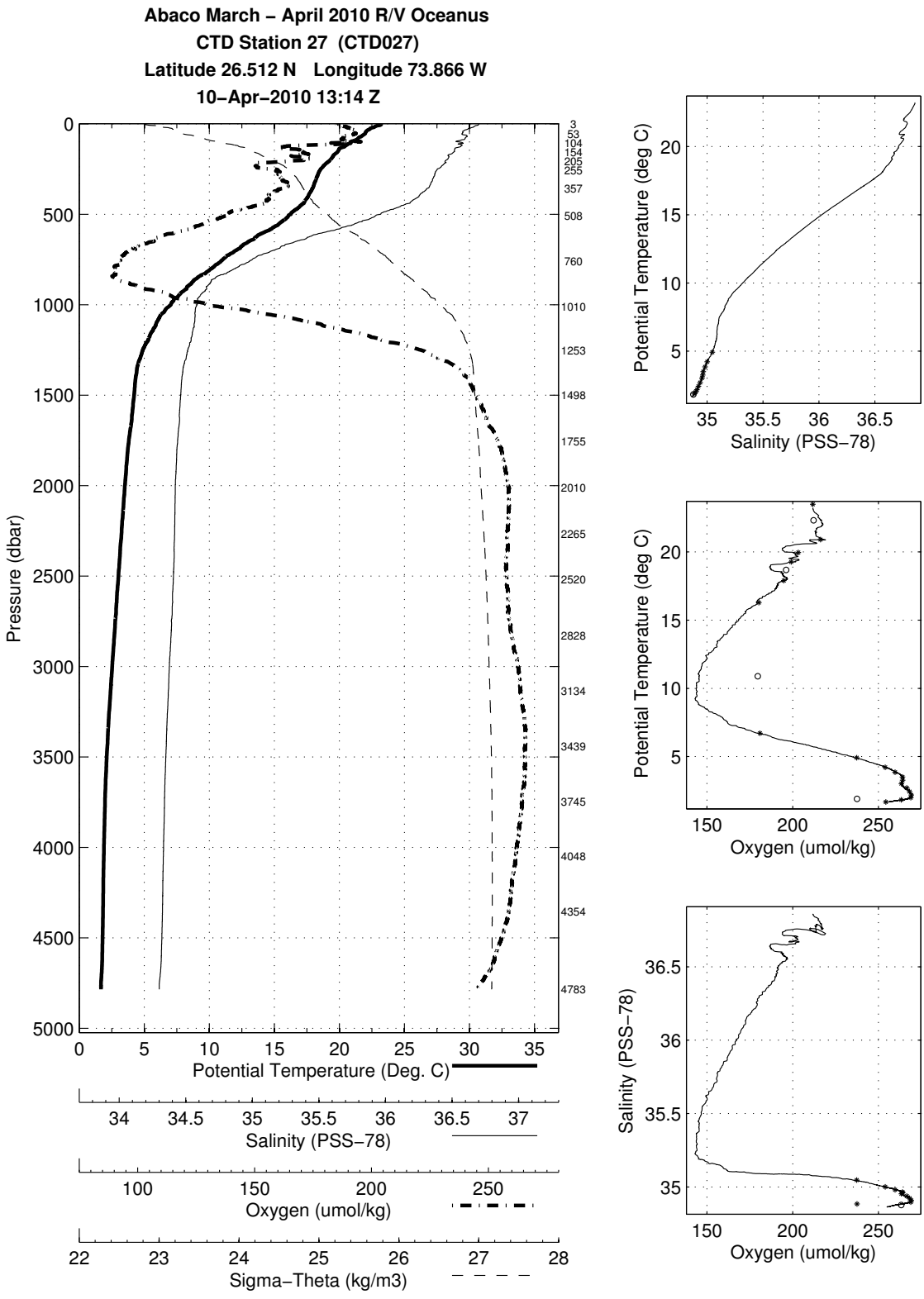
Pressure	Niskin	Temp90	PoTemp90	Salinity	Oxygen
dbar		°C	°C	PSS-78	μmol·kg^{-1}
4592	1	2.117	1.711	34.864	255.9
4404	2	2.169	1.784	34.873	247.8
4090	3	2.209	1.858	35.032	238.5
3779	4	2.263	1.946	34.890	238.1
3463	5	2.376	2.091	34.899	269.3
3158	6	2.574	2.316	34.911	218.8
2852	7	2.816	2.585	34.925	267.3
2545	8	3.126	2.919	34.942	233.7
2294	9	3.324	3.138	34.949	265.6
2039	10	3.592	3.427	34.955	202.3
1783	11	3.847	3.702	34.968	262.2
1526	12	4.237	4.111	34.990	254.0
1272	13	4.954	4.844	35.034	237.7
1018	14	6.799	6.699	35.088	141.0
765	15	10.740	10.644	35.381	176.2
511	16	16.130	16.047	36.187	176.2
359	17	17.958	17.895	36.521	175.3
258	18	18.522	18.476	36.580	163.7
207	19	19.059	19.022	36.630	198.7
156	20	19.586	19.557	36.691	192.9
105	21	20.343	20.323	36.735	203.6
54	22	21.355	21.344	36.765	167.4
2	23	23.061	23.060	36.815	213.7


Abaco March – April 2010 R/V Oceanus
CTD Station 26 (CTD026)
Latitude 26.498 N Longitude 74.237 W
10–Apr–2010 08:12 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)

Abaco March - April 2010 R/V Oceanus
CTD Station 27 (CTD027)
Latitude 26.512N Longitude 73.866W
10-Apr-2010 13:14Z

Pressure	Temp90	PoTemp90	Salinity	Oxygen	DynHt	SigT
dbar	°C	°C	PSS-78	μmol·kg^{-1}	m^2·s^{-2}	kg·m^{-3}
1	23.216	23.215	36.845	211.8	0.003	25.271
10	22.918	22.916	36.828	212.7	0.027	25.345
20	22.624	22.620	36.807	214.8	0.053	25.415
30	22.336	22.330	36.777	216.9	0.078	25.475
50	22.026	22.016	36.748	217.5	0.127	25.542
75	21.518	21.503	36.765	212.9	0.187	25.699
100	20.908	20.889	36.722	217.8	0.244	25.836
125	20.451	20.427	36.735	196.3	0.297	25.972
150	19.952	19.924	36.695	201.0	0.347	26.076
200	19.328	19.292	36.645	201.8	0.444	26.204
250	18.604	18.560	36.589	192.3	0.535	26.349
300	18.292	18.239	36.563	194.9	0.622	26.410
400	17.672	17.603	36.475	191.3	0.792	26.500
500	16.353	16.271	36.236	179.3	0.954	26.636
600	14.301	14.211	35.886	162.5	1.104	26.827
700	12.128	12.034	35.566	149.4	1.235	27.023
800	10.283	10.186	35.330	143.9	1.349	27.178
900	8.388	8.290	35.151	151.3	1.447	27.348
1000	7.149	7.049	35.095	172.0	1.530	27.487
1100	6.039	5.937	35.078	205.1	1.598	27.622
1200	5.380	5.274	35.057	226.2	1.657	27.688
1300	4.780	4.670	35.026	243.2	1.710	27.734
1400	4.460	4.344	35.000	251.5	1.760	27.750
1500	4.346	4.222	34.993	254.3	1.810	27.757
1750	3.963	3.820	34.974	260.9	1.932	27.784
2000	3.673	3.511	34.959	264.2	2.051	27.804
2500	3.220	3.016	34.947	263.7	2.283	27.842
3000	2.785	2.539	34.922	267.2	2.507	27.864
3500	2.405	2.115	34.900	269.3	2.722	27.882
4000	2.244	1.903	34.885	266.8	2.935	27.887
4500	2.196	1.799	34.874	262.1	3.156	27.887

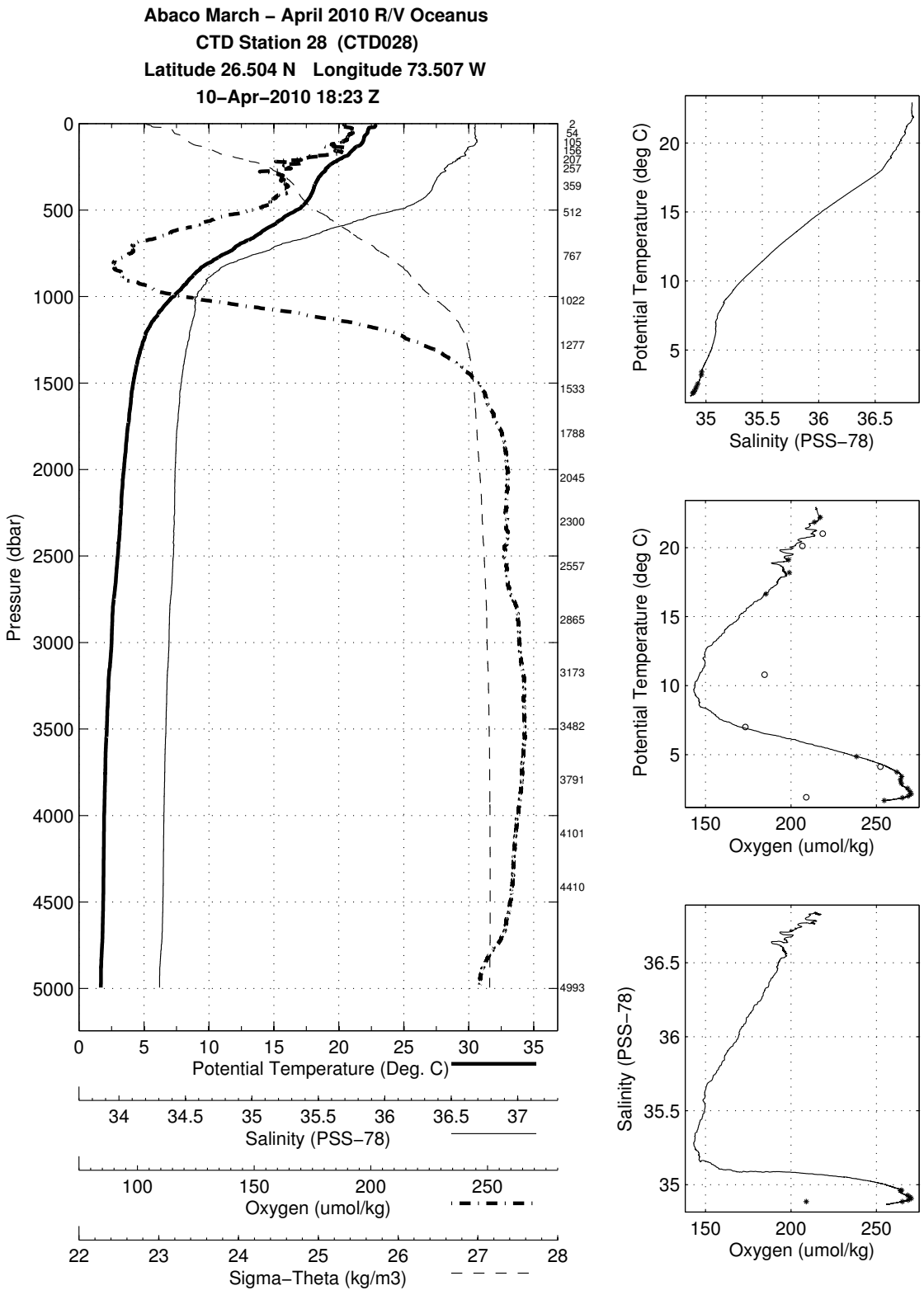
Pressure	Niskin	Temp90	PoTemp90	Salinity	Oxygen
dbar		°C	°C	PSS-78	μmol·kg^{-1}
4784	1	2.100	1.671	34.857	254.3
4355	2	2.214	1.833	34.878	263.3
4049	3	2.246	1.898	35.037	237.5
3745	4	2.310	1.996	34.892	268.8
3439	5	2.463	2.178	34.903	269.1
3135	6	2.688	2.430	34.918	268.1
2828	7	2.934	2.703	34.932	266.5
2521	8	3.232	3.025	34.949	263.4
2266	9	3.441	3.256	34.954	264.1
2010	10	3.672	3.508	34.961	264.0
1755	11	4.001	3.857	34.974	259.7
1499	12	4.349	4.225	34.991	254.0
1254	13	5.032	4.924	35.036	237.3
1011	14	6.827	6.728	35.085	180.9
761	15	10.965	10.868	36.222	179.6
509	16	16.349	16.266	36.235	180.3
357	17	17.981	17.918	36.527	194.8
256	18	18.695	18.649	36.595	196.1
206	19	19.274	19.236	36.636	199.2
155	20	20.016	19.987	36.702	203.3
105	21	20.969	20.949	36.706	216.2
54	22	22.382	22.372	36.800	212.2
3	23	23.495	23.494	36.854	211.7


Abaco March – April 2010 R/V Oceanus
CTD Station 27 (CTD027)
Latitude 26.512 N Longitude 73.866 W
10–Apr–2010 13:14 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)

Abaco March - April 2010 R/V Oceanus
CTD Station 28 (CTD028)
Latitude 26.504N Longitude 73.507W
10-Apr-2010 18:23Z

Pressure	Temp90	PoTemp90	Salinity	Oxygen	DynHt	SigT
dbar	°C	°C	PSS-78	μmol·kg^{-1}	m^2·s^{-2}	kg·m^{-3}
1	22.922	22.921	36.816	214.6	0.003	25.334
10	22.824	22.822	36.813	215.0	0.026	25.361
20	22.754	22.750	36.815	215.0	0.052	25.383
30	22.294	22.288	36.813	217.0	0.077	25.514
50	22.224	22.214	36.813	217.3	0.126	25.535
75	21.982	21.967	36.818	215.9	0.187	25.609
100	21.889	21.869	36.822	214.2	0.247	25.640
125	21.663	21.639	36.809	211.3	0.306	25.695
150	21.154	21.125	36.764	212.8	0.363	25.803
200	20.238	20.201	36.714	202.9	0.472	26.016
250	19.205	19.159	36.637	197.2	0.570	26.232
300	18.628	18.575	36.590	195.7	0.661	26.346
400	18.007	17.937	36.531	197.2	0.835	26.461
500	16.815	16.732	36.319	185.9	1.002	26.591
600	14.681	14.590	35.946	166.9	1.155	26.792
700	12.421	12.325	35.608	149.6	1.290	26.998
800	10.236	10.139	35.323	144.0	1.406	27.180
900	8.572	8.473	35.149	147.0	1.505	27.318
1000	7.396	7.294	35.094	164.8	1.591	27.451
1100	6.203	6.100	35.077	201.9	1.663	27.601
1200	5.320	5.214	35.049	228.2	1.722	27.689
1300	4.883	4.772	35.027	241.3	1.776	27.723
1400	4.518	4.401	35.008	250.3	1.827	27.749
1500	4.285	4.161	34.994	255.4	1.876	27.764
1750	3.899	3.757	34.970	262.1	1.997	27.787
2000	3.610	3.448	34.957	264.6	2.114	27.808
2500	3.188	2.985	34.947	263.6	2.343	27.844
3000	2.752	2.507	34.919	268.3	2.563	27.865
3500	2.425	2.134	34.899	269.9	2.777	27.880
4000	2.271	1.929	34.886	267.6	2.992	27.886
4500	2.259	1.859	34.880	265.3	3.215	27.887

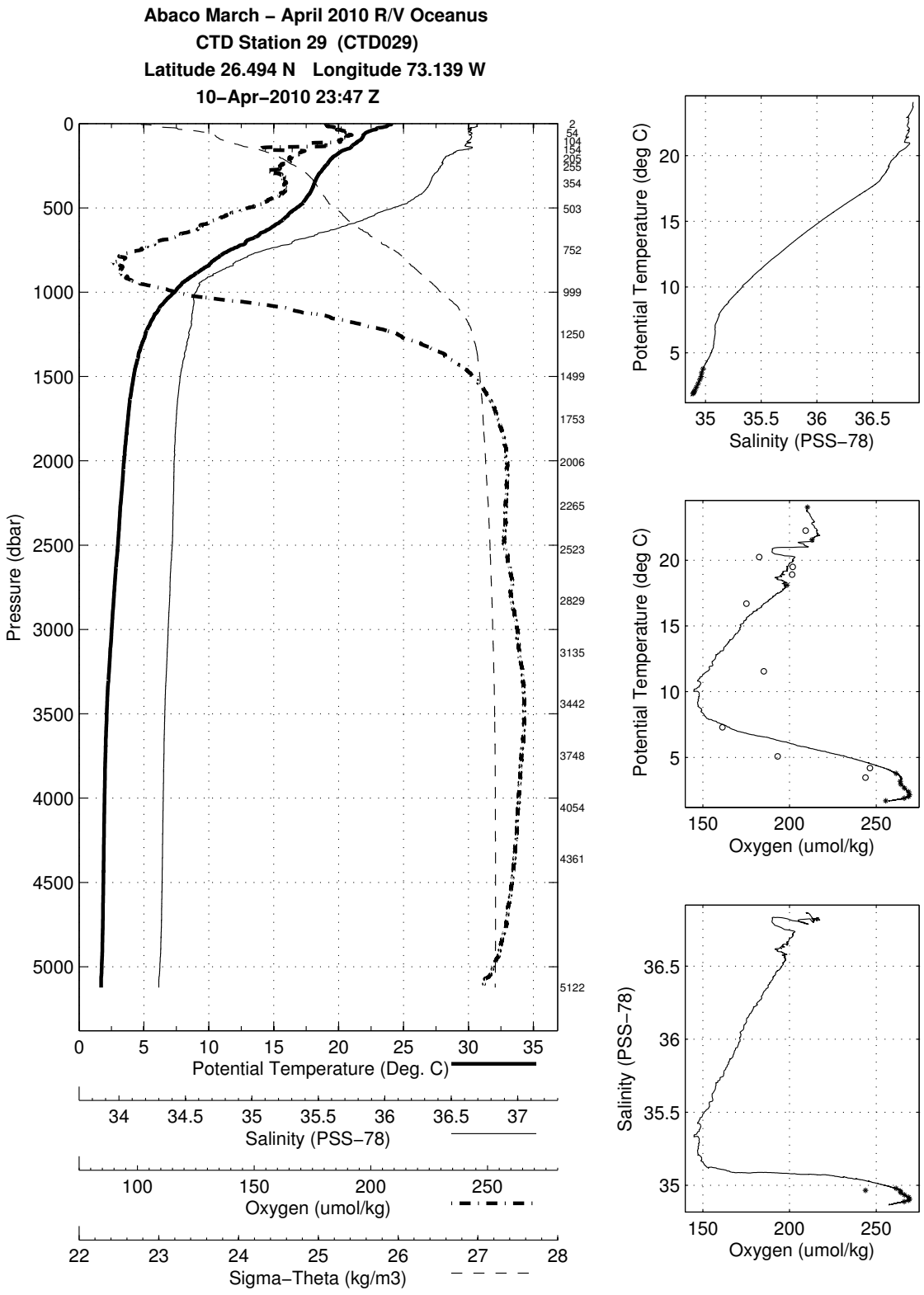
Pressure	Niskin	Temp90	PoTemp90	Salinity	Oxygen
dbar		°C	°C	PSS-78	μmol·kg^{-1}
4994	1	2.136	1.680	34.858	254.6
4410	2	2.264	1.875	34.881	265.2
4101	3	2.267	1.913	35.070	209.0
3791	4	2.316	1.997	34.889	268.6
3482	5	2.440	2.151	34.900	270.4
3173	6	2.592	2.333	34.910	269.7
2865	7	2.793	2.560	34.921	268.2
2557	8	3.123	2.915	34.941	264.6
2301	9	3.375	3.188	34.951	264.1
2045	10	3.577	3.411	34.954	264.7
1788	11	3.885	3.740	34.969	261.9
1533	12	4.244	4.118	34.990	252.3
1278	13	4.986	4.876	35.035	238.4
1022	14	7.133	7.031	35.084	173.3
767	15	10.885	10.787	36.305	184.6
512	16	16.736	16.651	36.305	185.4
359	17	18.239	18.176	36.557	199.0
258	18	19.142	19.095	36.631	198.6
207	19	20.193	20.154	36.732	206.7
156	20	21.049	21.019	36.757	218.6
105	21	21.861	21.840	36.825	213.7
55	22	22.193	22.182	36.814	217.2
2	23	23.551	23.550	36.814	214.6


Abaco March – April 2010 R/V Oceanus
CTD Station 28 (CTD028)
Latitude 26.504 N Longitude 73.507 W
10–Apr–2010 18:23 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)

Abaco March - April 2010 R/V Oceanus
CTD Station 29 (CTD029)
Latitude 26.494N Longitude 73.139W
10-Apr-2010 23:47Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	24.063	24.063	36.854	209.5	0.003	25.027
10	23.775	23.773	36.847	210.3	0.029	25.108
20	23.496	23.492	36.839	211.9	0.057	25.186
30	22.926	22.920	36.795	214.3	0.084	25.319
50	22.259	22.249	36.799	215.5	0.135	25.515
75	21.902	21.887	36.815	215.8	0.196	25.629
100	21.640	21.620	36.797	213.8	0.255	25.691
125	21.162	21.138	36.778	209.0	0.312	25.811
150	20.696	20.667	36.794	189.9	0.366	25.951
200	19.570	19.533	36.651	198.6	0.467	26.145
250	19.038	18.993	36.626	195.9	0.561	26.267
300	18.514	18.460	36.581	195.9	0.651	26.368
400	17.943	17.874	36.521	197.3	0.824	26.469
500	16.834	16.751	36.322	186.0	0.991	26.589
600	15.213	15.120	36.040	171.8	1.147	26.747
700	12.954	12.856	35.697	158.6	1.286	26.962
800	10.662	10.562	35.387	148.7	1.406	27.156
900	8.946	8.844	35.202	147.5	1.509	27.301
1000	7.412	7.309	35.091	164.3	1.596	27.447
1100	6.252	6.148	35.075	198.5	1.669	27.593
1200	5.503	5.396	35.065	221.7	1.729	27.679
1300	4.977	4.865	35.038	237.9	1.784	27.721
1400	4.616	4.499	35.016	247.3	1.836	27.745
1500	4.332	4.207	34.996	254.2	1.885	27.761
1750	3.913	3.771	34.971	261.5	2.006	27.787
2000	3.627	3.465	34.958	264.3	2.123	27.807
2500	3.200	2.996	34.947	263.5	2.353	27.843
3000	2.757	2.511	34.920	267.6	2.575	27.865
3500	2.422	2.131	34.899	269.6	2.790	27.880
4000	2.306	1.964	34.889	268.0	3.006	27.886
4500	2.274	1.874	34.882	266.0	3.230	27.887
5000	2.209	1.749	34.868	260.2	3.465	27.886

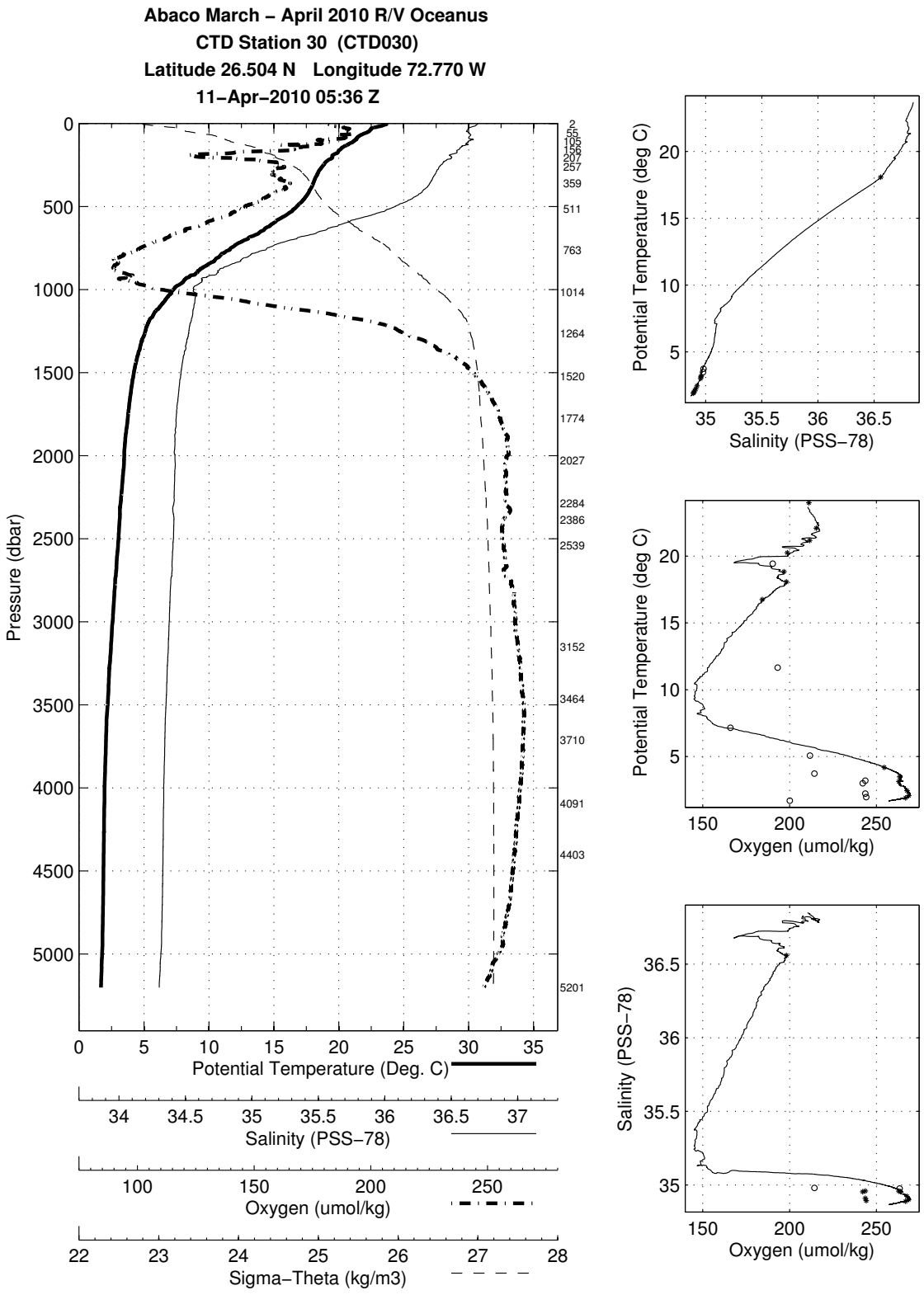
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
5122	1	2.170	1.696	34.860	255.6
4361	2	2.280	1.896	34.883	266.2
4054	3	2.296	8.023	−999.000	NaN
3749	4	2.341	2.026	34.894	268.7
3442	5	2.438	2.154	34.900	269.2
3135	6	2.640	2.383	34.913	268.7
2830	7	2.889	2.658	34.928	266.3
2523	8	3.164	2.959	34.945	264.2
2265	9	3.373	3.189	34.953	263.9
2007	10	3.640	3.477	34.960	243.8
1753	11	3.924	3.781	34.971	261.5
1500	12	4.317	4.193	34.995	246.4
1250	13	5.197	5.087	35.077	193.1
1000	14	7.365	7.264	35.087	161.3
752	15	11.659	11.559	36.310	185.2
504	16	16.762	16.678	36.310	175.1
355	17	18.165	18.102	36.550	198.6
255	18	18.959	18.913	36.613	201.5
206	19	19.593	19.555	36.676	201.8
155	20	20.304	20.275	36.731	182.5
105	21	21.576	21.555	36.794	212.9
54	22	22.282	22.271	36.809	209.3
2	23	24.043	24.043	36.859	210.3


Abaco March – April 2010 R/V Oceanus
CTD Station 29 (CTD029)
Latitude 26.494 N Longitude 73.139 W
10–Apr–2010 23:47 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)

Abaco March - April 2010 R/V Oceanus
CTD Station 30 (CTD030)
Latitude 26.504N Longitude 72.770W
11-Apr-2010 05:36Z

Pressure	Temp90	PoTemp90	Salinity	Oxygen	DynHt	SigT
dbar	°C	°C	PSS-78	μmol·kg^{-1}	m^2·s^{-2}	kg·m^{-3}
1	23.674	23.674	36.837	210.4	0.003	25.130
10	23.456	23.454	36.829	211.5	0.028	25.189
20	22.953	22.949	36.802	213.9	0.055	25.315
30	22.493	22.486	36.779	216.4	0.081	25.432
50	22.253	22.243	36.776	216.3	0.132	25.499
75	21.576	21.561	36.790	213.8	0.191	25.702
100	21.266	21.246	36.794	207.9	0.248	25.792
125	20.758	20.734	36.777	202.1	0.303	25.920
150	20.218	20.190	36.729	199.7	0.355	26.030
200	19.551	19.514	36.677	170.5	0.453	26.170
250	18.866	18.822	36.610	195.1	0.546	26.298
300	18.449	18.396	36.579	192.7	0.635	26.383
400	17.835	17.766	36.502	196.9	0.807	26.481
500	16.849	16.765	36.325	185.0	0.973	26.588
600	15.043	14.950	36.011	173.2	1.128	26.763
700	12.919	12.821	35.684	160.2	1.267	26.959
800	10.917	10.816	35.414	147.3	1.386	27.132
900	9.118	9.016	35.221	148.3	1.491	27.289
1000	7.351	7.250	35.077	159.2	1.580	27.444
1100	6.344	6.240	35.077	194.2	1.653	27.582
1200	5.439	5.332	35.057	224.8	1.714	27.681
1300	4.964	4.852	35.034	238.3	1.769	27.719
1400	4.611	4.493	35.012	247.8	1.821	27.743
1500	4.343	4.219	34.997	254.1	1.871	27.761
1750	3.922	3.779	34.969	261.9	1.992	27.784
2000	3.646	3.483	34.960	264.3	2.110	27.807
2500	3.244	3.040	34.950	262.7	2.341	27.842
3000	2.830	2.583	34.924	266.6	2.566	27.862
3500	2.498	2.206	34.904	269.5	2.786	27.878
4000	2.309	1.966	34.889	268.2	3.003	27.886
4500	2.279	1.879	34.883	265.9	3.227	27.887
5000	2.235	1.774	34.871	261.6	3.463	27.886

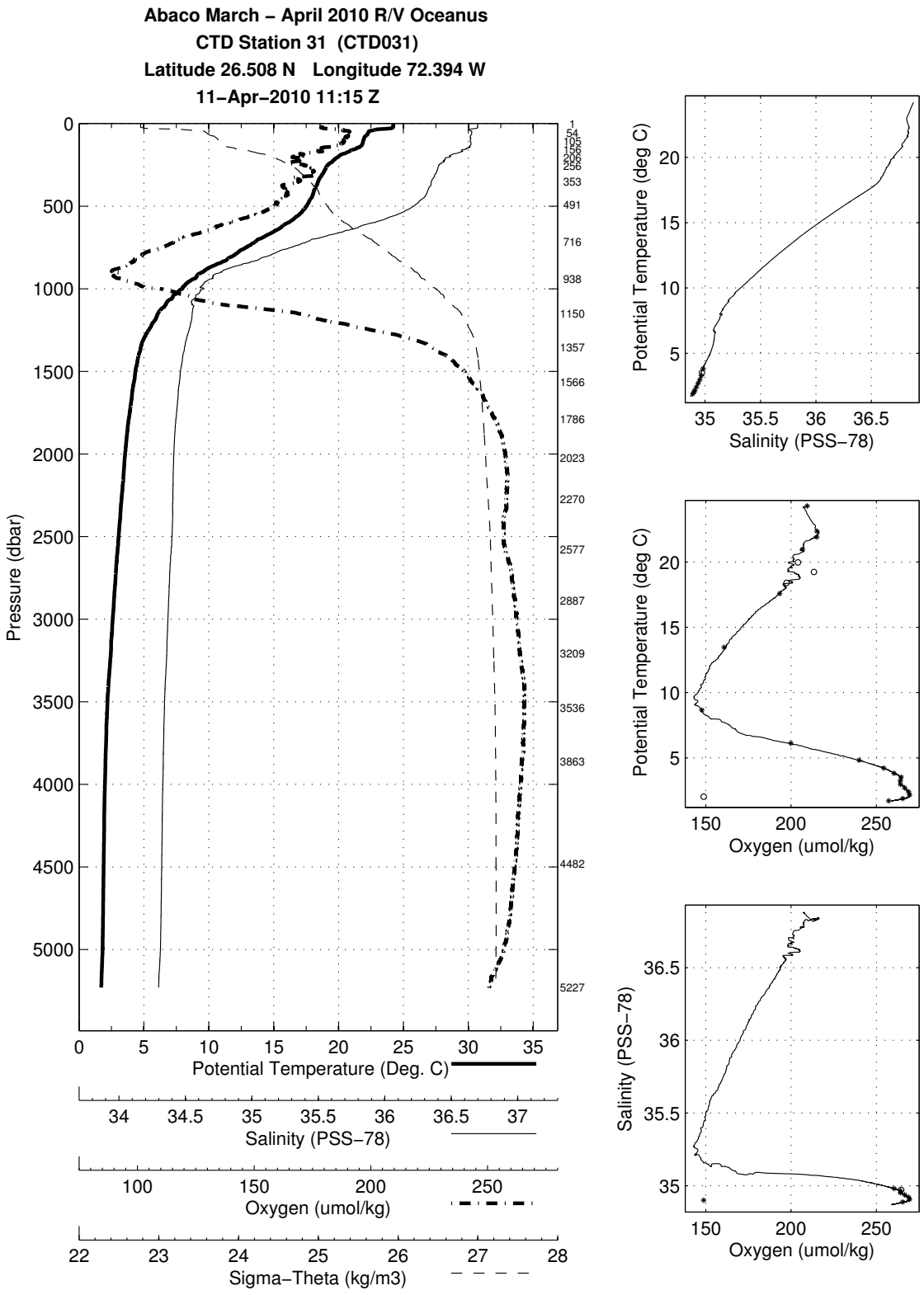
Pressure	Niskin	Temp90	PoTemp90	Salinity	Oxygen
dbar		°C	°C	PSS-78	μmol·kg^{-1}
5201	1	2.177	1.693	34.860	200.1
4403	2	2.287	1.898	34.884	266.9
4092	3	2.311	1.957	34.947	244.2
3711	4	2.385	2.072	34.896	268.6
3465	5	2.511	2.222	34.905	243.6
3153	6	2.711	2.451	34.917	267.6
2539	7	3.209	3.001	34.948	242.2
2386	8	3.328	3.133	34.953	263.0
2284	9	3.377	3.192	34.952	243.6
2028	10	3.645	3.480	34.961	263.4
1775	11	3.880	3.736	34.973	214.3
1521	12	4.302	4.177	34.992	254.5
1265	13	5.204	5.093	35.048	211.7
1014	14	7.350	7.247	35.094	165.9
764	15	11.763	11.661	36.733	193.2
511	16	16.818	16.733	36.314	184.3
359	17	18.143	18.080	36.546	198.2
258	18	18.879	18.833	36.611	196.7
207	19	19.408	19.370	36.660	190.3
157	20	20.309	20.279	36.732	198.7
106	21	21.191	21.170	36.780	211.5
55	22	22.111	22.100	36.795	215.4
3	23	23.999	23.999	36.860	211.1


Abaco March – April 2010 R/V Oceanus
CTD Station 30 (CTD030)
Latitude 26.504 N Longitude 72.770 W
11–Apr–2010 05:36 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)

Abaco March - April 2010 R/V Oceanus
CTD Station 31 (CTD031)
Latitude 26.508N Longitude 72.394W
11-Apr-2010 11:15Z

Pressure	Temp90	PoTemp90	Salinity	Oxygen	DynHt	SigT
dbar	°C	°C	PSS-78	μmol·kg^{-1}	m^2·s^{-2}	kg·m^{-3}
1	24.210	24.209	36.866	207.1	0.003	24.992
10	24.210	24.208	36.863	207.3	0.030	24.990
20	24.217	24.213	36.864	207.4	0.059	24.990
30	23.863	23.857	36.847	208.9	0.089	25.083
50	22.332	22.322	36.827	216.0	0.141	25.515
75	22.078	22.063	36.818	215.6	0.202	25.582
100	21.932	21.912	36.818	214.1	0.262	25.625
125	21.846	21.821	36.821	212.9	0.322	25.653
150	21.411	21.381	36.797	207.4	0.381	25.758
200	20.039	20.002	36.694	198.7	0.488	26.054
250	19.222	19.176	36.622	202.2	0.586	26.216
300	18.866	18.813	36.603	205.1	0.679	26.295
400	18.213	18.143	36.555	196.5	0.857	26.428
500	17.619	17.533	36.464	192.9	1.030	26.509
600	16.218	16.121	36.209	179.2	1.195	26.650
700	13.909	13.806	35.827	163.5	1.345	26.868
800	11.978	11.871	35.553	152.2	1.475	27.043
900	9.567	9.462	35.253	143.6	1.588	27.241
1000	8.065	7.958	35.144	157.9	1.683	27.394
1100	6.754	6.646	35.081	178.5	1.762	27.532
1200	5.871	5.760	35.069	210.2	1.828	27.638
1300	5.117	5.003	35.041	234.5	1.886	27.707
1400	4.713	4.594	35.018	245.4	1.939	27.736
1500	4.469	4.343	35.002	251.6	1.990	27.751
1750	4.043	3.899	34.978	259.7	2.114	27.779
2000	3.713	3.550	34.961	264.0	2.235	27.801
2500	3.256	3.051	34.949	263.5	2.469	27.840
3000	2.840	2.593	34.923	267.4	2.696	27.860
3500	2.477	2.185	34.902	269.7	2.917	27.878
4000	2.336	1.992	34.891	268.6	3.135	27.885
4500	2.296	1.895	34.884	266.8	3.361	27.887
5000	2.273	1.812	34.875	263.5	3.598	27.886

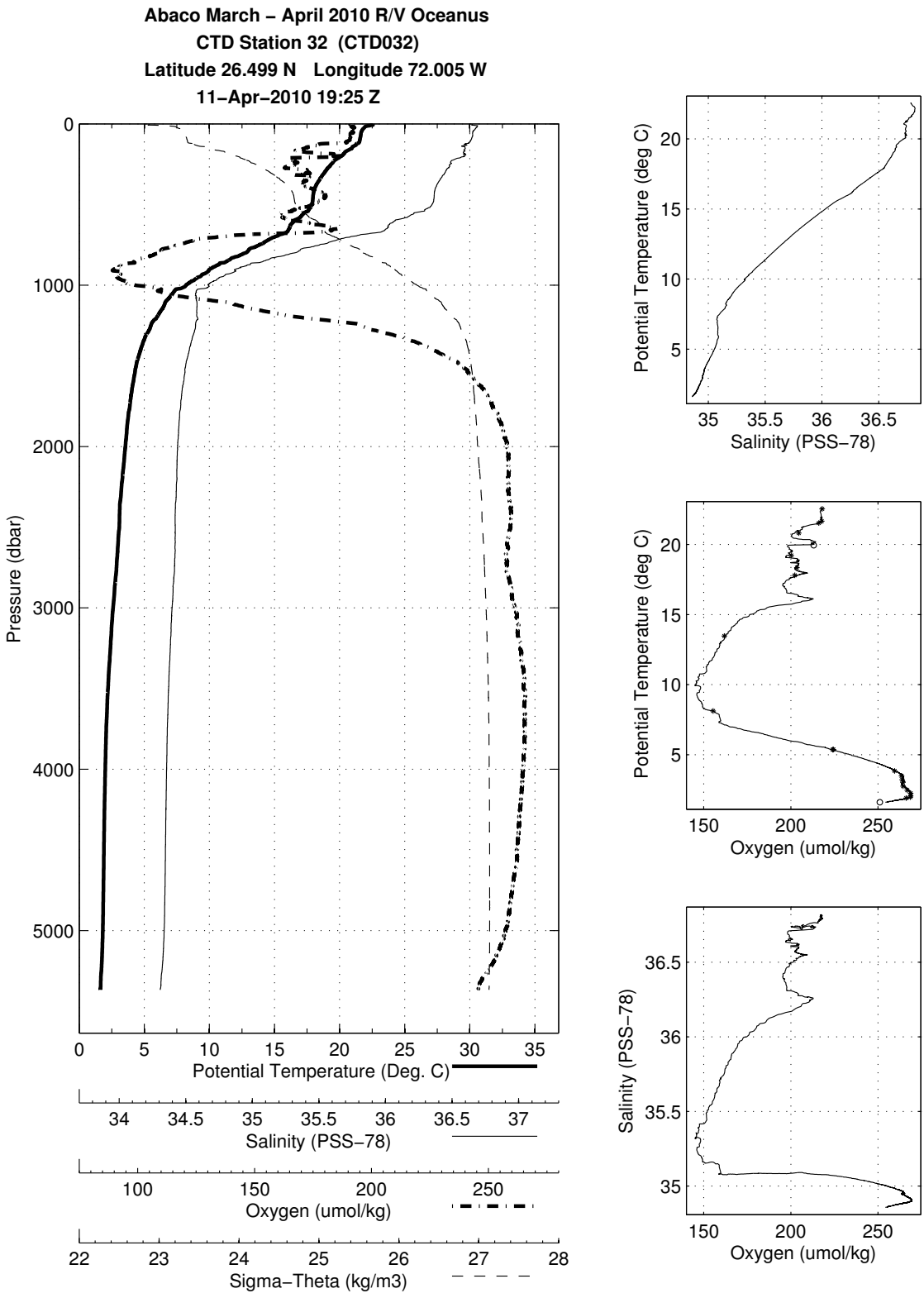
Pressure	Niskin	Temp90	PoTemp90	Salinity	Oxygen
dbar		°C	°C	PSS-78	μmol·kg^{-1}
5227	1	2.203	1.715	34.864	257.2
4483	2	2.294	1.895	34.884	265.4
3863	3	2.368	2.035	35.467	148.8
3537	4	2.458	2.163	34.900	269.3
3209	5	2.689	2.423	34.915	268.8
2888	6	2.943	2.705	34.928	266.6
2578	7	3.190	2.979	34.942	264.1
2271	8	3.461	3.275	34.955	264.1
2024	9	3.681	3.516	34.957	264.5
1787	10	3.971	3.824	34.972	260.4
1566	11	4.346	4.215	34.993	254.3
1357	12	4.932	4.815	35.030	239.9
1151	13	6.225	6.116	35.075	199.9
939	14	8.803	8.698	35.187	147.7
716	15	13.553	13.450	35.786	160.8
492	16	17.667	17.582	36.475	193.3
354	17	18.470	18.408	36.576	197.4
257	18	19.480	19.433	36.692	213.4
207	19	20.094	20.056	36.720	204.0
156	20	21.025	20.995	36.764	206.8
105	21	21.920	21.899	36.814	215.0
55	22	22.453	22.442	36.815	215.1
2	23	24.286	24.285	36.867	209.5


Abaco March – April 2010 R/V Oceanus
CTD Station 31 (CTD031)
Latitude 26.508 N Longitude 72.394 W
11–Apr–2010 11:15 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)

Abaco March - April 2010 R/V Oceanus
CTD Station 32 (CTD032)
Latitude 26.499N Longitude 72.005W
11-Apr-2010 19:25Z

Pressure	Temp90	PoTemp90	Salinity	Oxygen	DynHt	SigT
dbar	°C	°C	PSS-78	μmol·kg^{-1}	m^2·s^{-2}	kg·m^{-3}
1	22.543	22.542	36.773	216.6	0.003	25.411
10	22.341	22.339	36.792	216.8	0.025	25.484
20	21.942	21.938	36.803	217.9	0.050	25.606
30	21.809	21.804	36.792	217.6	0.073	25.635
50	21.673	21.663	36.776	217.6	0.120	25.663
75	21.630	21.616	36.775	217.2	0.179	25.676
100	21.574	21.554	36.766	216.7	0.237	25.685
125	21.294	21.269	36.728	207.6	0.295	25.736
150	20.989	20.960	36.729	203.1	0.352	25.822
200	20.147	20.110	36.722	212.0	0.458	26.047
250	19.406	19.360	36.638	199.1	0.557	26.180
300	18.907	18.854	36.606	204.2	0.651	26.287
400	18.162	18.092	36.546	205.0	0.829	26.434
500	17.949	17.862	36.525	205.3	1.003	26.475
600	16.626	16.526	36.298	198.8	1.172	26.624
700	15.127	15.018	36.022	177.1	1.330	26.757
800	12.873	12.760	35.676	159.0	1.470	26.965
900	10.175	10.066	35.320	145.4	1.589	27.190
1000	8.306	8.198	35.147	151.9	1.688	27.359
1100	6.756	6.648	35.077	177.2	1.769	27.528
1200	6.060	5.948	35.081	201.9	1.838	27.624
1300	5.319	5.204	35.059	228.0	1.897	27.698
1400	4.846	4.725	35.033	241.7	1.951	27.733
1500	4.502	4.376	35.009	250.1	2.003	27.753
1750	4.031	3.887	34.979	259.7	2.126	27.781
2000	3.712	3.549	34.960	264.1	2.246	27.800
2500	3.284	3.079	34.945	265.1	2.479	27.834
3000	2.852	2.604	34.925	266.6	2.708	27.861
3500	2.505	2.213	34.904	269.0	2.928	27.877
4000	2.345	2.002	34.891	268.8	3.147	27.884
4500	2.300	1.899	34.884	266.9	3.373	27.887
5000	2.274	1.812	34.876	263.6	3.610	27.887

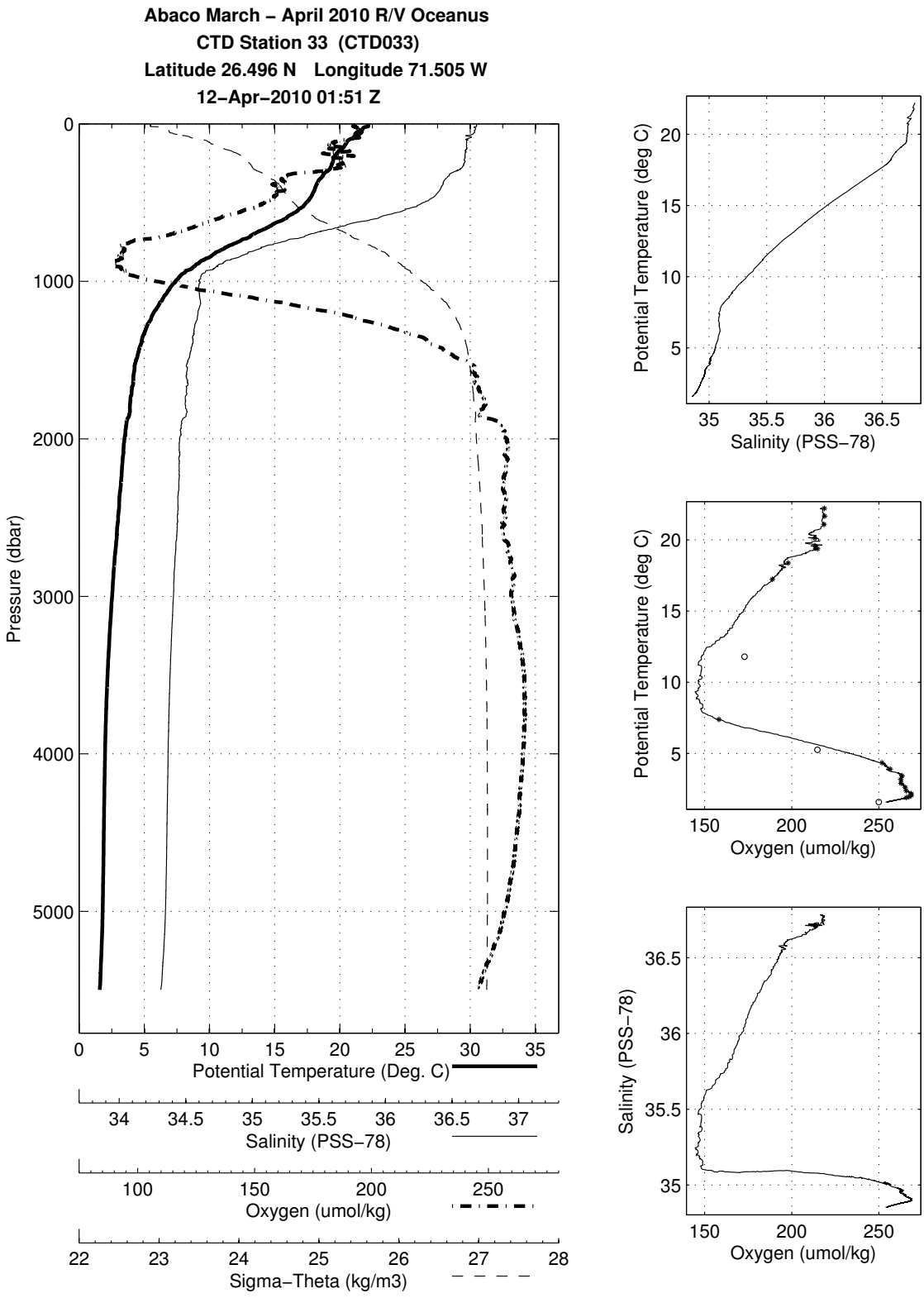
Pressure	Niskin	Temp90	PoTemp90	Salinity	Oxygen
dbar		°C	°C	PSS-78	μmol·kg^{-1}
5367	1	2.115	1.612	34.853	251.1
4402	2	2.304	1.915	34.884	266.2
4089	3	2.328	1.974	34.893	268.6
3775	4	2.389	2.069	34.894	268.8
3462	5	2.542	2.253	34.906	268.8
3146	6	2.736	2.476	34.919	266.9
2838	7	2.997	2.763	34.934	264.4
2532	8	3.248	3.040	34.945	264.3
2281	9	3.401	3.216	34.950	264.0
2030	10	3.671	3.505	34.959	263.6
1777	11	3.993	3.847	34.976	259.6
1269	12	5.480	5.367	35.063	224.5
1269	13	5.480	5.366	35.063	224.0
1014	14	8.189	8.079	35.144	155.3
759	15	13.545	13.435	35.773	161.8
507	16	17.876	17.787	36.511	202.2
357	17	18.420	18.357	36.566	203.5
258	18	19.254	19.207	36.629	200.3
208	19	20.064	20.025	36.727	213.1
157	20	20.856	20.826	36.731	204.5
107	21	21.559	21.538	36.763	216.0
56	22	21.681	21.670	36.778	217.7
3	23	22.381	22.381	36.754	218.0


Abaco March – April 2010 R/V Oceanus
CTD Station 32 (CTD032)
Latitude 26.499 N Longitude 72.005 W
11–Apr–2010 19:25 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)

Abaco March - April 2010 R/V Oceanus
CTD Station 33 (CTD033)
Latitude 26.496N Longitude 71.505W
12-Apr-2010 01:51Z

Pressure	Temp90	PoTemp90	Salinity	Oxygen	DynHt	SigT
dbar	°C	°C	PSS-78	μmol·kg^{-1}	m^2·s^{-2}	kg·m^{-3}
1	22.180	22.180	36.771	217.0	0.002	25.513
10	22.179	22.177	36.769	216.4	0.025	25.513
20	21.906	21.902	36.756	217.6	0.049	25.580
30	21.753	21.747	36.763	218.6	0.073	25.630
50	21.686	21.676	36.757	218.2	0.120	25.645
75	21.162	21.148	36.704	218.5	0.178	25.751
100	20.751	20.732	36.706	215.6	0.234	25.867
125	20.503	20.480	36.709	210.5	0.287	25.937
150	20.306	20.278	36.711	213.7	0.339	25.993
200	19.701	19.664	36.699	213.6	0.438	26.147
250	19.460	19.414	36.694	213.7	0.534	26.209
300	19.081	19.027	36.641	208.3	0.628	26.269
400	18.211	18.141	36.556	194.6	0.807	26.430
500	17.525	17.439	36.446	190.3	0.979	26.518
600	15.968	15.871	36.166	176.7	1.143	26.674
700	13.469	13.367	35.757	162.0	1.288	26.904
800	10.996	10.894	35.425	148.2	1.413	27.126
900	8.989	8.887	35.189	145.2	1.518	27.285
1000	7.483	7.380	35.080	157.6	1.607	27.428
1100	6.589	6.482	35.083	185.7	1.683	27.555
1200	5.811	5.701	35.073	211.9	1.748	27.649
1300	5.244	5.129	35.051	229.3	1.806	27.700
1400	4.857	4.737	35.040	240.9	1.859	27.738
1500	4.482	4.356	35.012	250.2	1.910	27.757
1750	4.076	3.931	34.996	256.6	2.032	27.790
2000	3.633	3.471	34.962	263.4	2.150	27.810
2500	3.186	2.982	34.948	263.0	2.379	27.846
3000	2.775	2.529	34.924	264.8	2.600	27.867
3500	2.466	2.174	34.903	268.7	2.816	27.880
4000	2.327	1.984	34.891	268.2	3.033	27.886
4500	2.289	1.888	34.883	266.5	3.258	27.887
5000	2.259	1.798	34.874	262.7	3.495	27.887

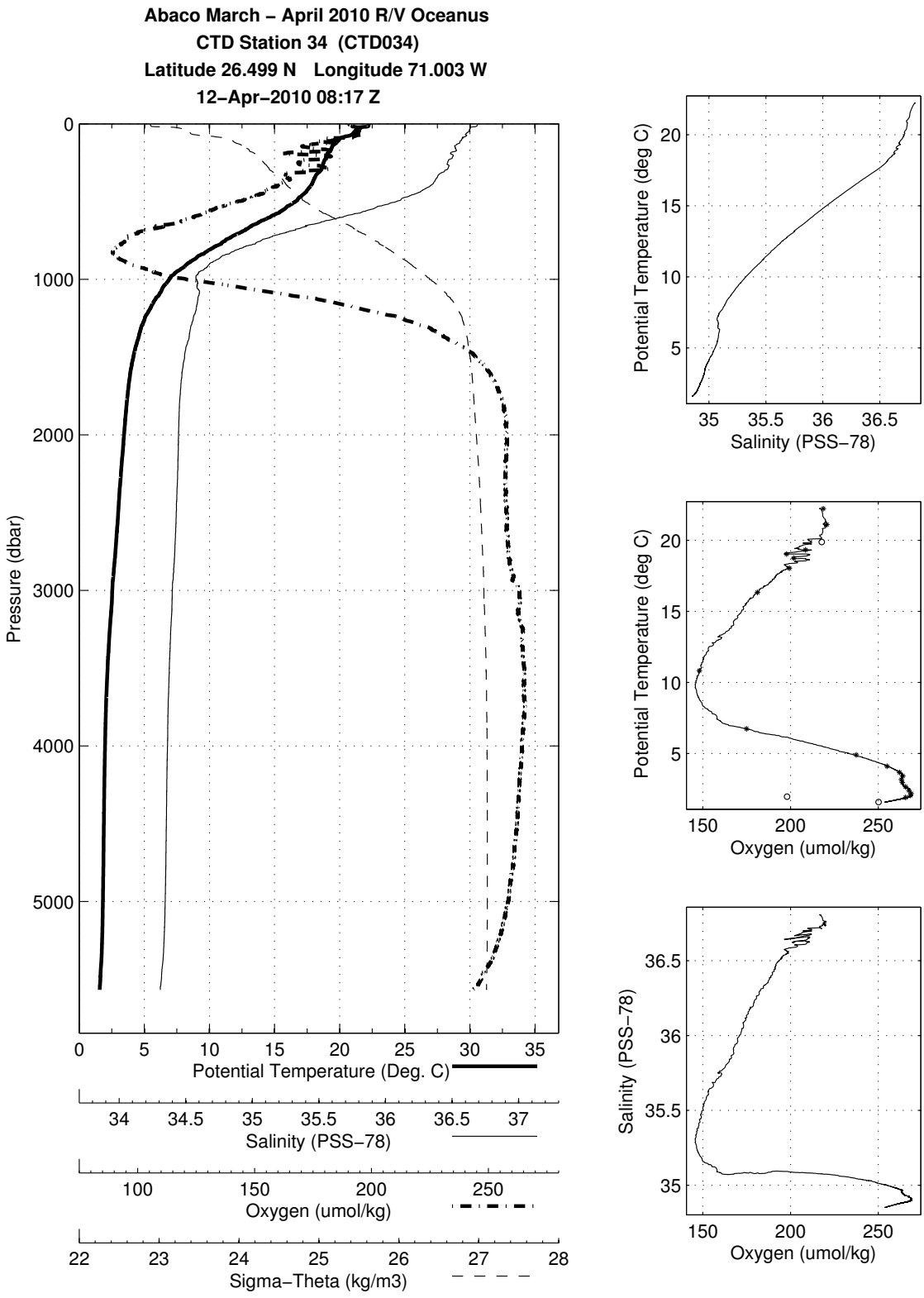
Pressure	Niskin	Temp90	PoTemp90	Salinity	Oxygen
dbar		°C	°C	PSS-78	μmol·kg^{-1}
5498	1	2.102	1.583	34.846	249.9
4393	2	2.294	1.906	34.884	265.8
4083	3	2.323	1.970	34.890	267.3
3775	4	2.372	2.053	34.895	268.6
3474	5	2.469	2.180	34.903	268.5
3169	6	2.638	2.378	34.915	265.8
2861	7	2.869	2.636	34.929	265.0
2552	8	3.105	2.898	34.944	262.8
2297	9	3.365	3.178	34.957	262.6
2041	10	3.598	3.433	34.960	263.3
1784	11	4.061	3.913	34.997	256.5
1528	12	4.458	4.330	35.008	251.8
1272	13	5.381	5.268	35.071	214.8
1016	14	7.524	7.420	35.085	158.2
762	15	11.870	11.768	36.040	172.9
505	16	17.315	17.229	36.408	188.9
352	17	18.439	18.377	36.572	197.9
255	18	19.425	19.378	36.694	214.8
205	19	19.634	19.596	36.699	213.3
153	20	20.136	20.107	36.710	213.3
102	21	21.058	21.038	36.731	218.6
52	22	21.640	21.630	36.758	NaN
3	23	22.202	22.201	36.768	218.7


Abaco March – April 2010 R/V Oceanus
CTD Station 33 (CTD033)
Latitude 26.496 N Longitude 71.505 W
12–Apr–2010 01:51 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)

Abaco March - April 2010 R/V Oceanus
CTD Station 34 (CTD034)
Latitude 26.499N Longitude 71.003W
12-Apr-2010 08:17Z

Pressure	Temp90	PoTemp90	Salinity	Oxygen	DynHt	SigT
dbar	°C	°C	PSS-78	μmol·kg^{-1}	m^2·s^{-2}	kg·m^{-3}
1	22.226	22.225	36.795	216.5	0.002	25.519
10	22.227	22.225	36.794	216.9	0.025	25.518
20	21.696	21.692	36.757	218.4	0.049	25.640
30	21.333	21.327	36.748	219.9	0.072	25.735
50	21.171	21.162	36.741	219.3	0.117	25.775
75	20.823	20.809	36.729	218.0	0.172	25.863
100	19.978	19.959	36.699	210.6	0.223	26.070
125	19.730	19.707	36.682	208.7	0.271	26.123
150	19.450	19.423	36.658	203.7	0.319	26.179
200	19.067	19.031	36.644	206.2	0.411	26.270
250	18.817	18.772	36.612	201.3	0.502	26.312
300	18.585	18.531	36.594	204.5	0.591	26.360
400	17.838	17.769	36.503	194.7	0.763	26.481
500	16.682	16.599	36.294	182.8	0.928	26.603
600	14.747	14.655	35.965	169.7	1.080	26.792
700	12.439	12.343	35.614	153.0	1.214	27.000
800	10.300	10.202	35.340	146.5	1.329	27.183
900	8.403	8.305	35.149	150.4	1.427	27.344
1000	7.020	6.921	35.068	167.7	1.510	27.483
1100	6.241	6.137	35.085	198.4	1.580	27.602
1200	5.484	5.377	35.067	221.9	1.640	27.683
1300	4.901	4.790	35.035	239.1	1.693	27.728
1400	4.564	4.447	35.016	247.9	1.744	27.751
1500	4.280	4.157	34.997	254.4	1.793	27.767
1750	3.846	3.704	34.969	261.7	1.912	27.792
2000	3.602	3.440	34.959	263.7	2.029	27.811
2500	3.196	2.992	34.945	263.5	2.257	27.842
3000	2.784	2.538	34.921	267.4	2.480	27.864
3500	2.471	2.179	34.903	268.9	2.698	27.879
4000	2.328	1.985	34.891	268.2	2.916	27.886
4500	2.294	1.894	34.884	266.8	3.141	27.887
5000	2.283	1.821	34.876	264.1	3.378	27.887
5500	2.147	1.626	34.853	256.1	3.625	27.883

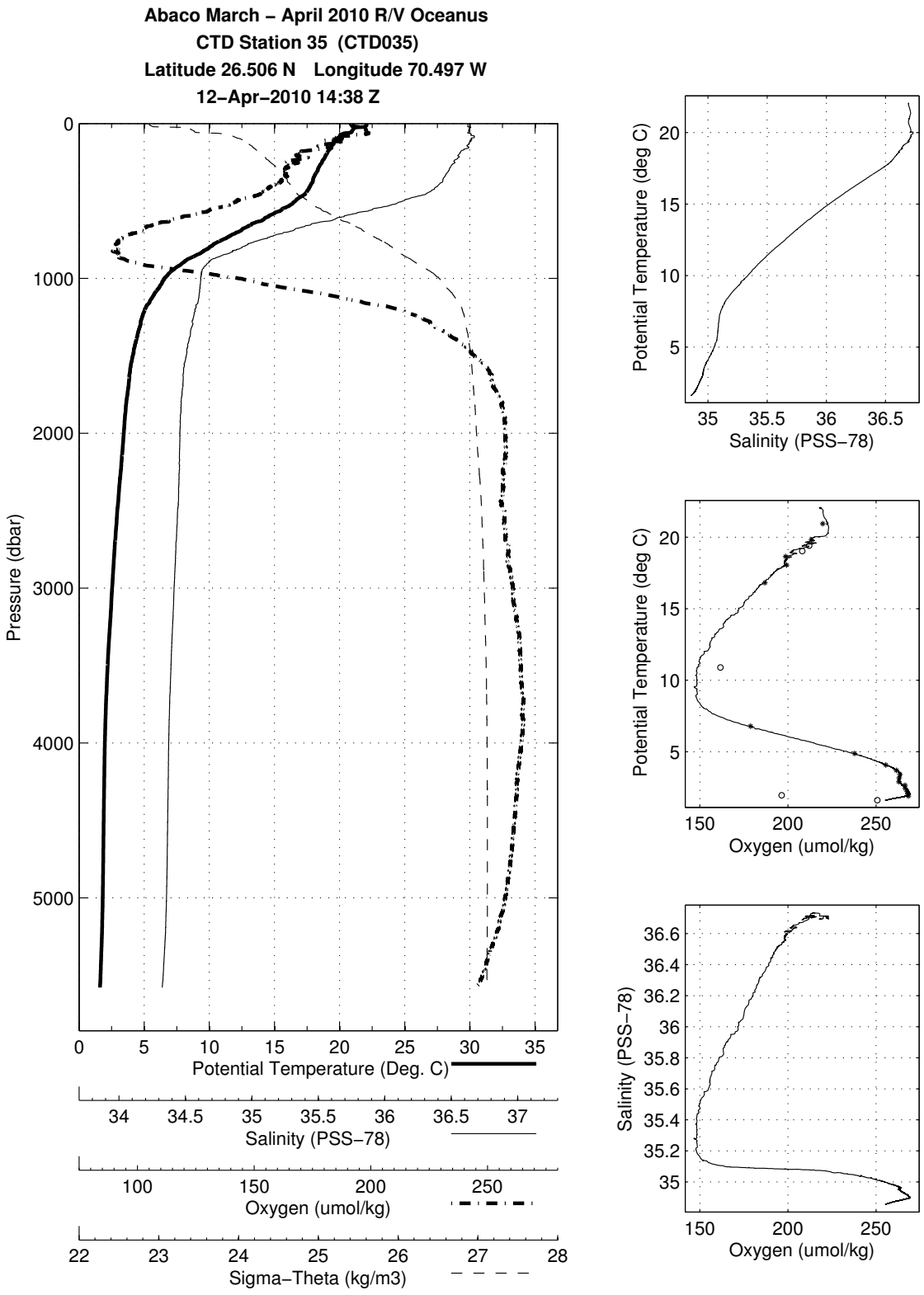
Pressure	Niskin	Temp90	PoTemp90	Salinity	Oxygen
dbar		°C	°C	PSS-78	μmol·kg^{-1}
5567	1	2.106	1.577	34.848	250.1
4414	2	2.298	1.907	34.886	265.5
4104	3	2.316	1.950	36.700	198.0
3794	4	2.369	2.048	34.897	268.3
3485	5	2.474	2.184	34.917	268.7
3175	6	2.658	2.396	34.916	267.4
2866	7	2.896	2.661	34.930	265.5
2557	8	3.170	2.961	34.947	263.7
2301	9	3.350	3.164	34.956	263.2
2044	10	3.581	3.416	34.962	264.0
1788	11	3.815	3.670	34.969	262.1
1531	12	4.217	4.092	34.992	255.0
1275	13	5.006	4.896	35.044	237.4
1021	14	6.832	6.732	35.074	174.9
765	15	10.905	10.808	35.419	148.0
510	16	16.397	16.313	36.249	181.2
358	17	18.106	18.043	36.544	199.3
257	18	18.767	18.721	36.607	201.9
207	19	19.062	19.024	36.627	197.7
156	20	19.350	19.321	36.661	208.5
105	21	19.900	19.881	36.527	217.7
55	22	21.138	21.127	36.743	220.6
2	23	22.212	22.212	36.799	218.6


Abaco March – April 2010 R/V Oceanus
CTD Station 34 (CTD034)
Latitude 26.499 N Longitude 71.003 W
12–Apr–2010 08:17 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)

Abaco March - April 2010 R/V Oceanus
CTD Station 35 (CTD035)
Latitude 26.506N Longitude 70.497W
12-Apr-2010 14:38Z

Pressure	Temp90	PoTemp90	Salinity	Oxygen	DynHt	SigT
dbar	°C	°C	PSS-78	μmol·kg^{-1}	m^2·s^{-2}	kg·m^{-3}
1	22.078	22.078	36.682	217.6	0.002	25.474
10	22.067	22.065	36.681	218.5	0.025	25.477
20	21.980	21.976	36.680	219.5	0.050	25.502
30	21.113	21.107	36.691	221.7	0.073	25.753
50	20.954	20.944	36.686	222.3	0.117	25.793
75	20.055	20.041	36.699	218.3	0.170	26.047
100	19.775	19.756	36.704	213.5	0.219	26.127
125	19.572	19.549	36.689	213.4	0.266	26.170
150	19.416	19.389	36.686	209.8	0.313	26.210
200	19.000	18.964	36.626	201.6	0.405	26.274
250	18.697	18.652	36.604	198.7	0.494	26.337
300	18.382	18.329	36.569	198.5	0.582	26.392
400	17.833	17.764	36.503	194.1	0.753	26.482
500	16.678	16.595	36.291	183.7	0.919	26.602
600	14.634	14.543	35.940	167.6	1.072	26.797
700	12.345	12.250	35.605	155.3	1.204	27.011
800	10.101	10.004	35.328	148.4	1.317	27.207
900	8.048	7.952	35.126	154.1	1.413	27.380
1000	6.657	6.561	35.082	184.1	1.490	27.544
1100	5.883	5.782	35.073	209.4	1.555	27.638
1200	5.138	5.034	35.047	231.9	1.612	27.708
1300	4.829	4.718	35.034	241.4	1.663	27.735
1400	4.503	4.386	35.012	249.6	1.713	27.754
1500	4.245	4.122	34.995	254.6	1.762	27.770
1750	3.853	3.712	34.970	261.5	1.880	27.792
2000	3.595	3.434	34.958	263.9	1.997	27.810
2500	3.133	2.931	34.943	263.4	2.224	27.846
3000	2.784	2.538	34.923	266.1	2.444	27.865
3500	2.487	2.195	34.904	268.4	2.663	27.879
4000	2.322	1.979	34.890	268.6	2.881	27.885
4500	2.291	1.891	34.884	266.4	3.106	27.887
5000	2.278	1.816	34.876	263.7	3.343	27.887
5500	2.174	1.651	34.856	257.0	3.589	27.884

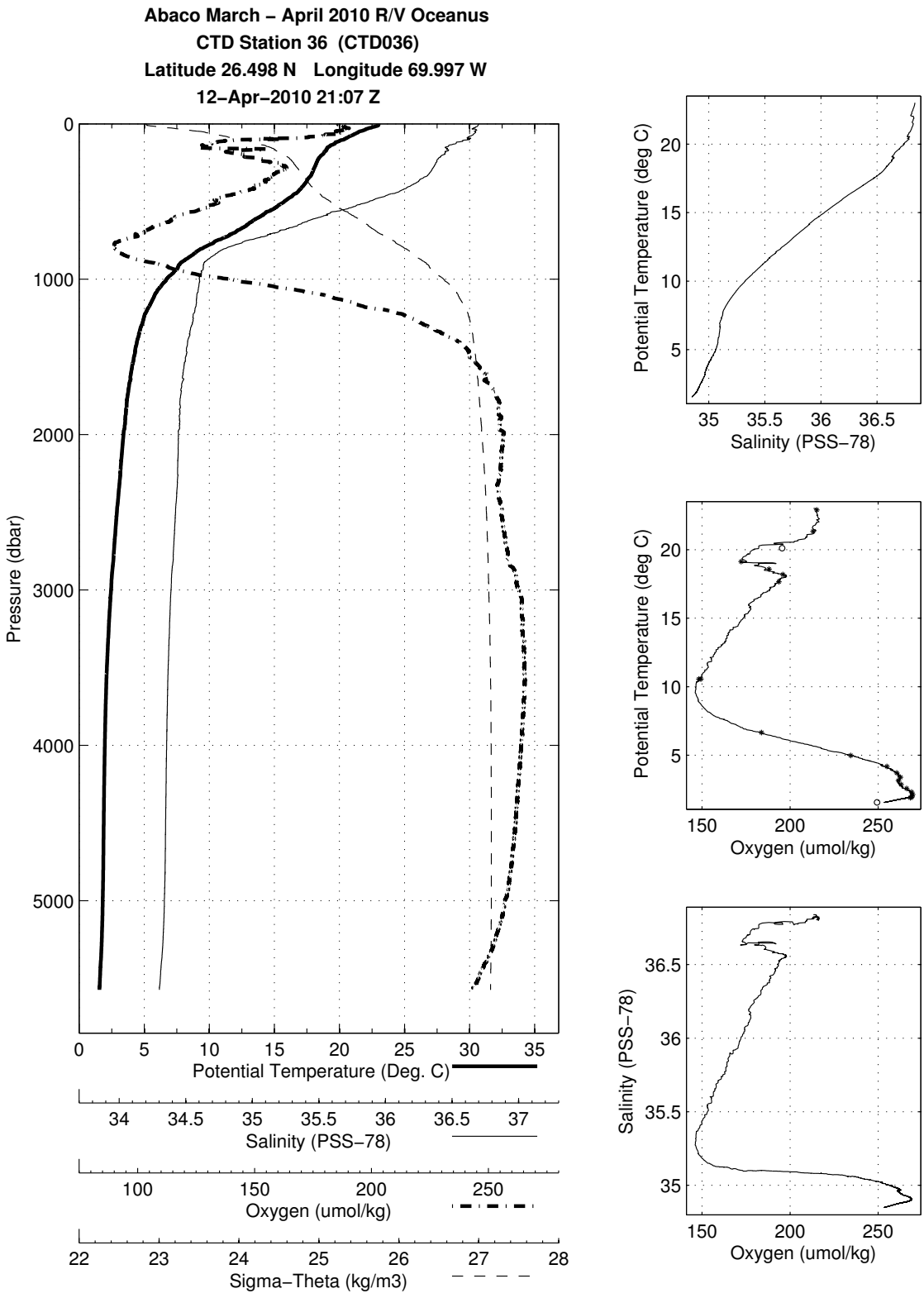
Pressure	Niskin	Temp90	PoTemp90	Salinity	Oxygen
dbar		°C	°C	PSS-78	μmol·kg^{-1}
5578	1	2.142	1.610	34.853	250.7
4392	2	2.295	1.907	34.896	268.3
4078	3	2.312	1.950	36.517	196.4
3768	4	2.380	2.062	34.897	267.9
3458	5	2.506	2.218	34.907	267.6
3149	6	2.706	2.446	34.919	266.5
2840	7	2.887	2.655	34.931	266.4
2536	8	3.121	2.915	34.945	262.9
2280	9	3.357	3.173	34.956	263.1
2022	10	3.578	3.415	34.959	263.5
1766	11	3.837	3.694	34.970	261.5
1509	12	4.194	4.071	34.993	255.5
1252	13	4.976	4.869	35.039	237.8
999	14	6.868	6.770	35.084	178.8
744	15	10.986	10.891	35.809	161.7
493	16	16.896	16.813	36.337	186.9
342	17	18.115	18.056	36.545	199.2
253	18	18.665	18.620	36.596	198.7
202	19	19.116	19.079	36.653	208.1
154	20	19.483	19.455	36.691	212.0
104	21	19.854	19.835	36.711	213.3
54	22	21.021	21.011	36.710	219.7
3	23	22.606	22.605	36.779	217.8


Abaco March – April 2010 R/V Oceanus
CTD Station 35 (CTD035)
Latitude 26.506 N Longitude 70.497 W
12–Apr–2010 14:38 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)

Abaco March - April 2010 R/V Oceanus
CTD Station 36 (CTD036)
Latitude 26.498N Longitude 69.997W
12-Apr-2010 21:07Z

Pressure	Temp90	PoTemp90	Salinity	Oxygen	DynHt	SigT
dbar	°C	°C	PSS-78	μmol·kg^{-1}	m^2·s^{-2}	kg·m^{-3}
1	23.012	23.012	36.826	213.3	0.003	25.316
10	22.985	22.983	36.824	215.0	0.026	25.322
20	22.533	22.529	36.807	215.6	0.052	25.441
30	22.181	22.175	36.792	215.0	0.077	25.530
50	21.523	21.514	36.808	213.2	0.125	25.729
75	20.944	20.930	36.785	209.0	0.180	25.873
100	20.386	20.367	36.770	191.6	0.232	26.014
125	19.687	19.664	36.689	176.0	0.281	26.139
150	19.125	19.098	36.621	173.1	0.328	26.236
200	18.688	18.652	36.607	186.1	0.417	26.339
250	18.281	18.237	36.562	193.5	0.503	26.410
300	18.033	17.980	36.535	197.3	0.588	26.453
400	17.275	17.208	36.403	189.0	0.754	26.542
500	15.847	15.767	36.149	177.3	0.912	26.686
600	13.953	13.864	35.846	164.7	1.056	26.870
700	12.051	11.957	35.572	155.4	1.183	27.042
800	9.595	9.501	35.259	146.5	1.293	27.239
900	7.856	7.761	35.120	159.1	1.385	27.404
1000	6.805	6.707	35.093	181.5	1.463	27.533
1100	5.903	5.802	35.078	208.9	1.528	27.640
1200	5.308	5.202	35.065	228.1	1.585	27.703
1300	4.893	4.782	35.045	240.0	1.638	27.737
1400	4.558	4.440	35.021	249.2	1.688	27.756
1500	4.330	4.206	35.008	252.5	1.737	27.771
1750	3.855	3.713	34.977	260.5	1.855	27.798
2000	3.562	3.401	34.963	262.7	1.970	27.817
2500	3.098	2.897	34.945	262.1	2.193	27.851
3000	2.695	2.451	34.918	267.0	2.409	27.869
3500	2.416	2.126	34.899	268.8	2.622	27.881
4000	2.312	1.969	34.890	268.0	2.838	27.886
4500	2.284	1.884	34.883	266.3	3.063	27.887
5000	2.268	1.807	34.875	263.1	3.299	27.887
5500	2.117	1.597	34.849	255.3	3.544	27.882

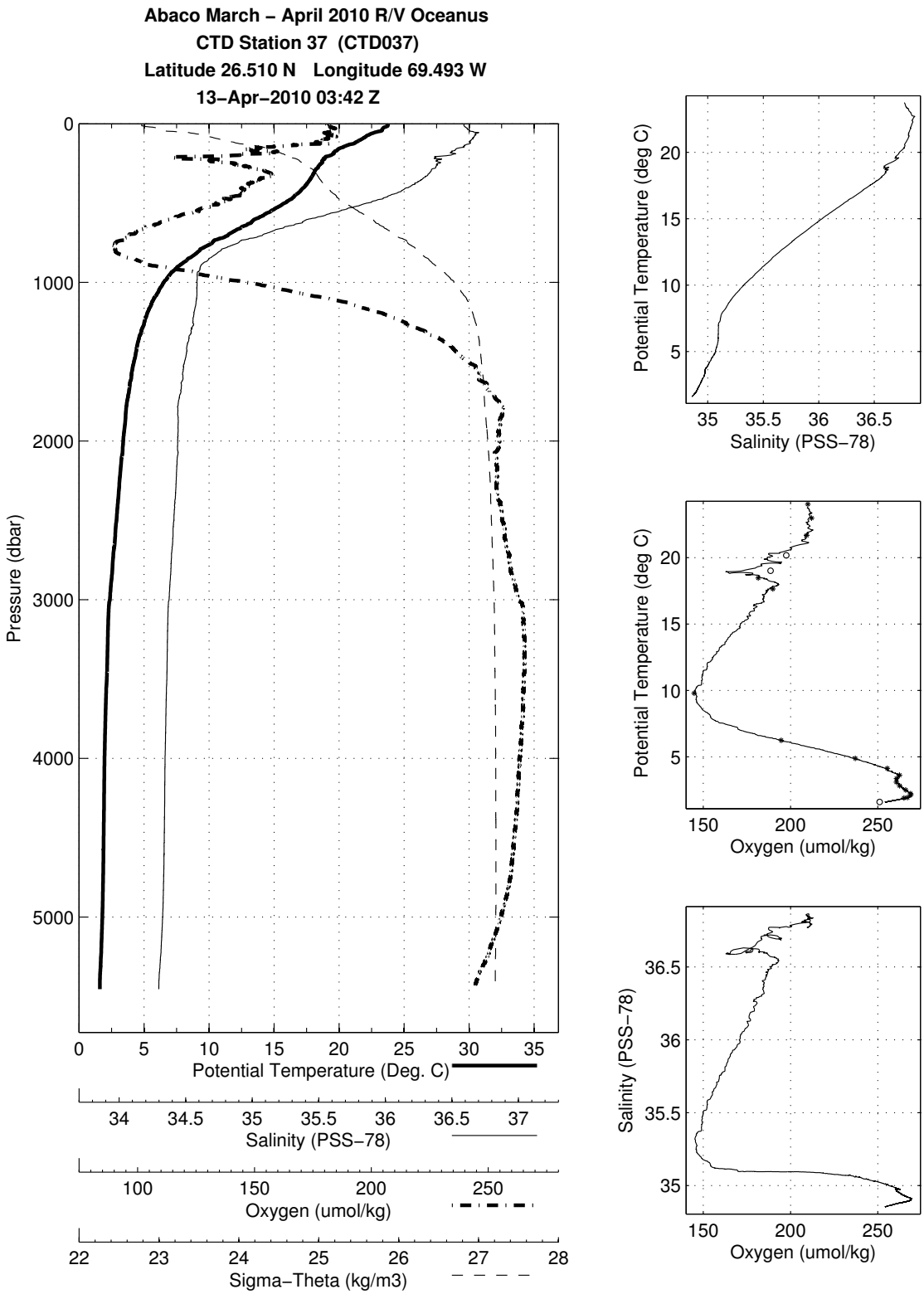
Pressure	Niskin	Temp90	PoTemp90	Salinity	Oxygen
dbar		°C	°C	PSS-78	μmol·kg^{-1}
5572	1	2.085	1.557	34.846	249.3
4409	2	2.288	1.898	34.893	268.2
4100	3	2.299	1.945	34.894	269.0
3791	4	2.343	2.023	34.894	269.2
3481	5	2.424	2.136	34.901	269.6
3172	6	2.579	2.319	34.911	268.9
2860	7	2.811	2.578	34.927	266.2
2541	8	3.076	2.871	34.943	263.0
2286	9	3.346	3.161	34.960	261.5
2037	10	3.557	3.392	34.962	262.7
1781	11	3.849	3.705	34.979	260.6
1520	12	4.284	4.158	35.005	254.9
1258	13	5.112	5.003	35.058	234.4
1002	14	6.734	6.637	35.094	183.7
748	15	10.692	10.598	35.396	148.3
748	16	10.692	10.598	35.396	149.4
354	17	17.721	17.661	36.486	193.7
254	18	18.239	18.195	36.560	195.9
206	19	18.633	18.597	36.600	188.0
157	20	19.204	19.175	36.641	172.3
106	21	20.150	20.130	36.731	195.5
56	22	21.293	21.282	36.789	213.1
2	23	22.852	22.852	36.828	215.1


Abaco March – April 2010 R/V Oceanus
CTD Station 36 (CTD036)
Latitude 26.498 N Longitude 69.997 W
12–Apr–2010 21:07 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)

Abaco March - April 2010 R/V Oceanus
CTD Station 37 (CTD037)
Latitude 26.510N Longitude 69.493W
13-Apr-2010 03:42Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	23.749	23.749	36.760	209.7	0.003	25.049
10	23.752	23.750	36.758	209.8	0.029	25.048
20	23.567	23.563	36.766	210.7	0.058	25.109
30	23.372	23.365	36.781	212.4	0.086	25.178
50	22.971	22.961	36.815	210.3	0.141	25.322
75	22.134	22.119	36.825	211.5	0.204	25.572
100	21.676	21.656	36.806	208.0	0.264	25.687
125	21.160	21.136	36.795	210.5	0.321	25.824
150	20.232	20.203	36.741	187.9	0.373	26.036
200	19.353	19.317	36.661	181.2	0.470	26.209
250	18.637	18.592	36.595	182.2	0.561	26.345
300	18.188	18.136	36.552	191.3	0.648	26.427
400	17.375	17.307	36.414	185.7	0.815	26.526
500	15.890	15.810	36.155	176.3	0.974	26.680
600	13.658	13.571	35.792	162.4	1.118	26.890
700	11.559	11.468	35.499	150.0	1.243	27.078
800	9.358	9.266	35.237	146.0	1.348	27.261
900	7.684	7.591	35.110	158.7	1.438	27.421
1000	6.618	6.522	35.088	185.3	1.513	27.554
1100	5.854	5.753	35.086	209.7	1.577	27.652
1200	5.324	5.218	35.070	226.8	1.633	27.705
1300	4.905	4.793	35.053	238.4	1.686	27.741
1400	4.572	4.455	35.026	246.9	1.736	27.758
1500	4.336	4.212	35.011	252.4	1.784	27.773
1750	3.825	3.684	34.973	261.5	1.902	27.797
2000	3.553	3.392	34.968	261.6	2.016	27.823
2500	3.076	2.875	34.945	262.5	2.236	27.852
3000	2.608	2.366	34.914	267.3	2.449	27.873
3500	2.418	2.128	34.900	268.9	2.659	27.881
4000	2.294	1.952	34.889	267.6	2.873	27.886
4500	2.283	1.883	34.883	266.1	3.098	27.887
5000	2.245	1.784	34.873	262.1	3.333	27.887

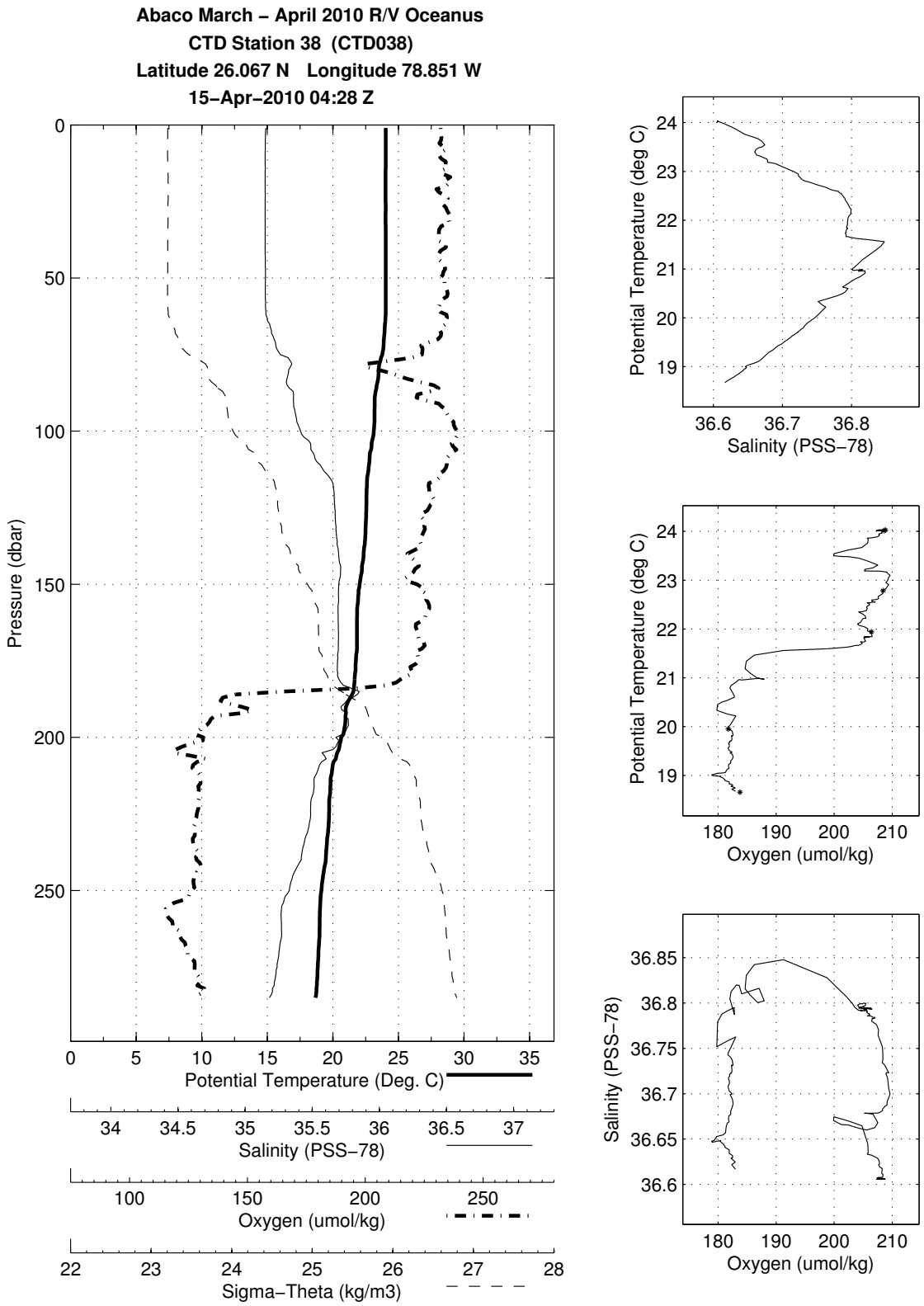
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
5453	1	2.104	1.590	34.849	251.1
4397	2	2.285	1.897	34.884	265.0
4088	3	2.290	1.938	34.889	267.1
3779	4	2.322	2.004	34.894	278.2
3473	5	2.415	2.127	34.901	268.9
3166	6	2.483	2.226	34.906	268.8
2859	7	2.732	2.502	34.923	266.0
2553	8	3.022	2.817	34.941	262.6
2298	9	3.266	3.081	34.958	260.7
2042	10	3.522	3.357	34.969	260.7
1786	11	3.765	3.622	35.001	262.5
1531	12	4.230	4.104	35.001	255.5
1276	13	4.969	4.859	35.055	237.1
1021	14	6.335	6.238	35.088	194.6
766	15	9.862	9.771	35.292	144.8
512	16	15.510	15.429	36.092	NaN
360	17	17.706	17.644	36.476	189.9
258	18	18.439	18.393	36.563	181.5
207	19	19.266	19.229	36.657	188.6
156	20	20.217	20.188	36.741	197.6
106	21	21.742	21.721	36.824	209.3
55	22	22.999	22.988	36.806	212.0
4	23	24.031	24.030	36.736	210.0


Abaco March – April 2010 R/V Oceanus
CTD Station 37 (CTD037)
Latitude 26.510 N Longitude 69.493 W
13–Apr–2010 03:42 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)

Abaco March - April 2010 R/V Oceanus
CTD Station 38 (CTD038)
Latitude 26.067N Longitude 78.851W
15-Apr-2010 04:28Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	24.028	24.028	36.594	206.1	0.003	24.840
10	24.029	24.027	36.592	206.0	0.031	24.839
20	24.020	24.015	36.592	206.6	0.062	24.843
30	24.024	24.018	36.592	206.9	0.093	24.842
50	24.037	24.026	36.593	206.0	0.156	24.840
75	23.777	23.761	36.631	204.2	0.233	24.948
100	23.136	23.115	36.683	207.8	0.305	25.177
125	22.574	22.548	36.771	205.2	0.372	25.408
150	22.072	22.042	36.782	204.2	0.436	25.560
200	20.667	20.629	36.774	182.7	0.554	25.947
250	19.172	19.127	36.655	181.3	0.652	26.254

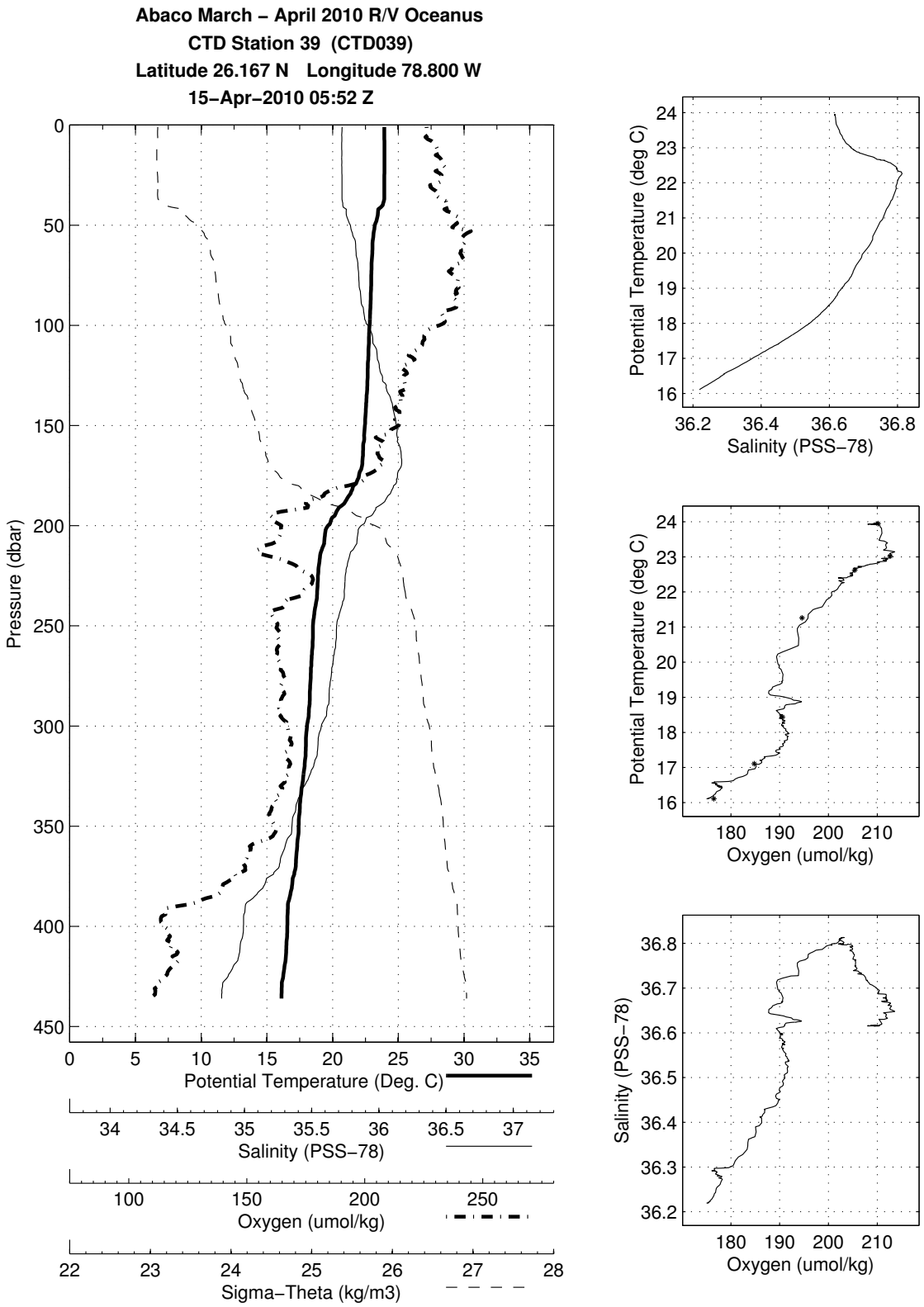
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
285	2	18.708	18.657	36.610	183.8
206	4	20.123	20.084	36.745	181.8
154	6	22.011	21.980	36.783	206.4
105	8	22.835	22.814	36.731	208.4
54	10	24.034	24.022	36.595	208.6
4	12	24.011	24.010	36.593	208.8


Abaco March – April 2010 R/V Oceanus
CTD Station 38 (CTD038)
Latitude 26.067 N Longitude 78.851 W
15–Apr–2010 04:28 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)

Abaco March - April 2010 R/V Oceanus
CTD Station 39 (CTD039)
Latitude 26.167N Longitude 78.800W
15-Apr-2010 05:52Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	23.935	23.934	36.603	206.6	0.003	24.875
10	23.951	23.949	36.602	207.6	0.031	24.870
20	23.951	23.947	36.602	208.5	0.061	24.870
30	23.936	23.930	36.603	207.1	0.092	24.876
50	23.225	23.215	36.630	210.2	0.152	25.108
75	22.959	22.943	36.658	210.1	0.223	25.208
100	22.832	22.811	36.688	208.4	0.292	25.269
125	22.689	22.664	36.735	204.1	0.359	25.347
150	22.485	22.455	36.782	203.5	0.425	25.443
200	19.686	19.649	36.666	190.3	0.544	26.126
250	18.550	18.505	36.586	189.6	0.635	26.360
300	18.100	18.048	36.536	190.5	0.722	26.437
400	16.618	16.552	36.280	175.9	0.885	26.604

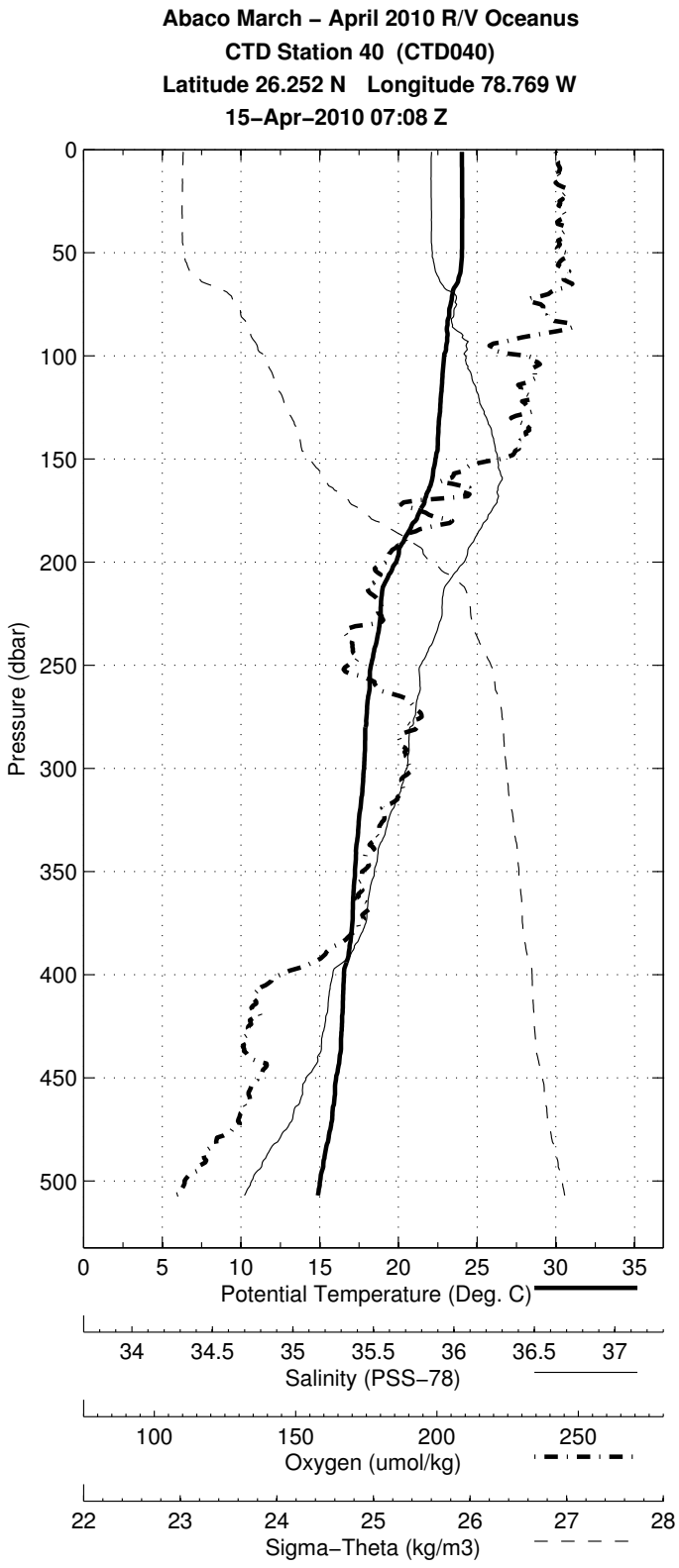
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
435	2	16.182	16.111	36.210	176.5
374	4	17.144	17.081	36.377	184.8
265	6	18.481	18.434	36.580	190.6
186	8	21.229	21.193	36.759	194.6
135	10	22.662	22.634	36.764	205.4
65	12	23.028	23.014	36.651	212.6
4	14	23.949	23.948	36.597	210.2

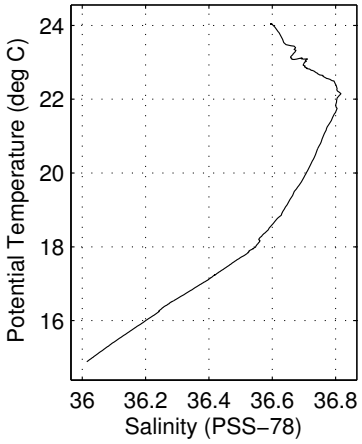

Abaco March – April 2010 R/V Oceanus
CTD Station 39 (CTD039)
Latitude 26.167 N Longitude 78.800 W
15–Apr–2010 05:52 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS–78)
Oxygen (umol/kg)
Sigma–Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS–78)
Oxygen (umol/kg)

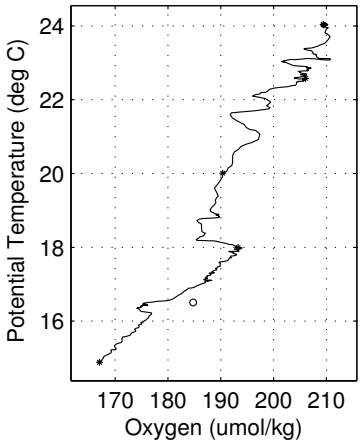
Abaco March - April 2010 R/V Oceanus
CTD Station 40 (CTD040)
Latitude 26.252N Longitude 78.769W
15-Apr-2010 07:08Z

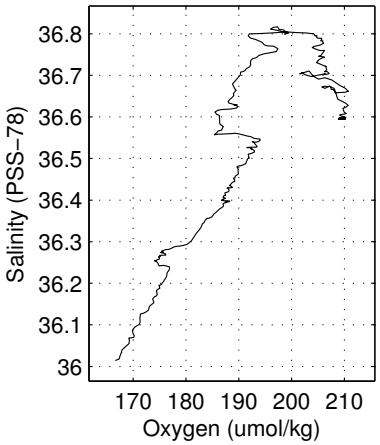
Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	24.033	24.033	36.583	207.2	0.003	24.830
10	24.039	24.037	36.581	207.6	0.031	24.828
20	24.047	24.043	36.581	208.1	0.062	24.826
30	24.057	24.051	36.582	207.9	0.094	24.825
50	24.040	24.030	36.585	208.2	0.156	24.833
75	23.340	23.325	36.661	205.7	0.232	25.099
100	22.925	22.904	36.689	204.0	0.303	25.243
125	22.680	22.655	36.739	204.5	0.370	25.353
150	22.384	22.354	36.789	201.7	0.436	25.477
200	19.891	19.854	36.685	189.7	0.550	26.087
250	18.301	18.257	36.550	185.7	0.641	26.396
300	17.865	17.813	36.508	192.1	0.725	26.474
400	16.606	16.540	36.278	178.3	0.887	26.605
500	15.100	15.023	36.026	167.5	1.039	26.758

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
506	2	14.965	14.887	36.010	167.0
402	4	16.575	16.509	36.390	184.8
276	6	18.059	18.011	36.536	193.3
197	8	20.038	20.001	36.694	190.3
132	10	22.649	22.622	36.767	206.1
54	12	24.022	24.011	36.588	209.5
4	14	24.040	24.039	36.582	209.4


Abaco March – April 2010 R/V Oceanus
CTD Station 40 (CTD040)
Latitude 26.252 N Longitude 78.769 W
15–Apr–2010 07:08 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS–78)
Oxygen (umol/kg)
Sigma–Theta (kg/m3)


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

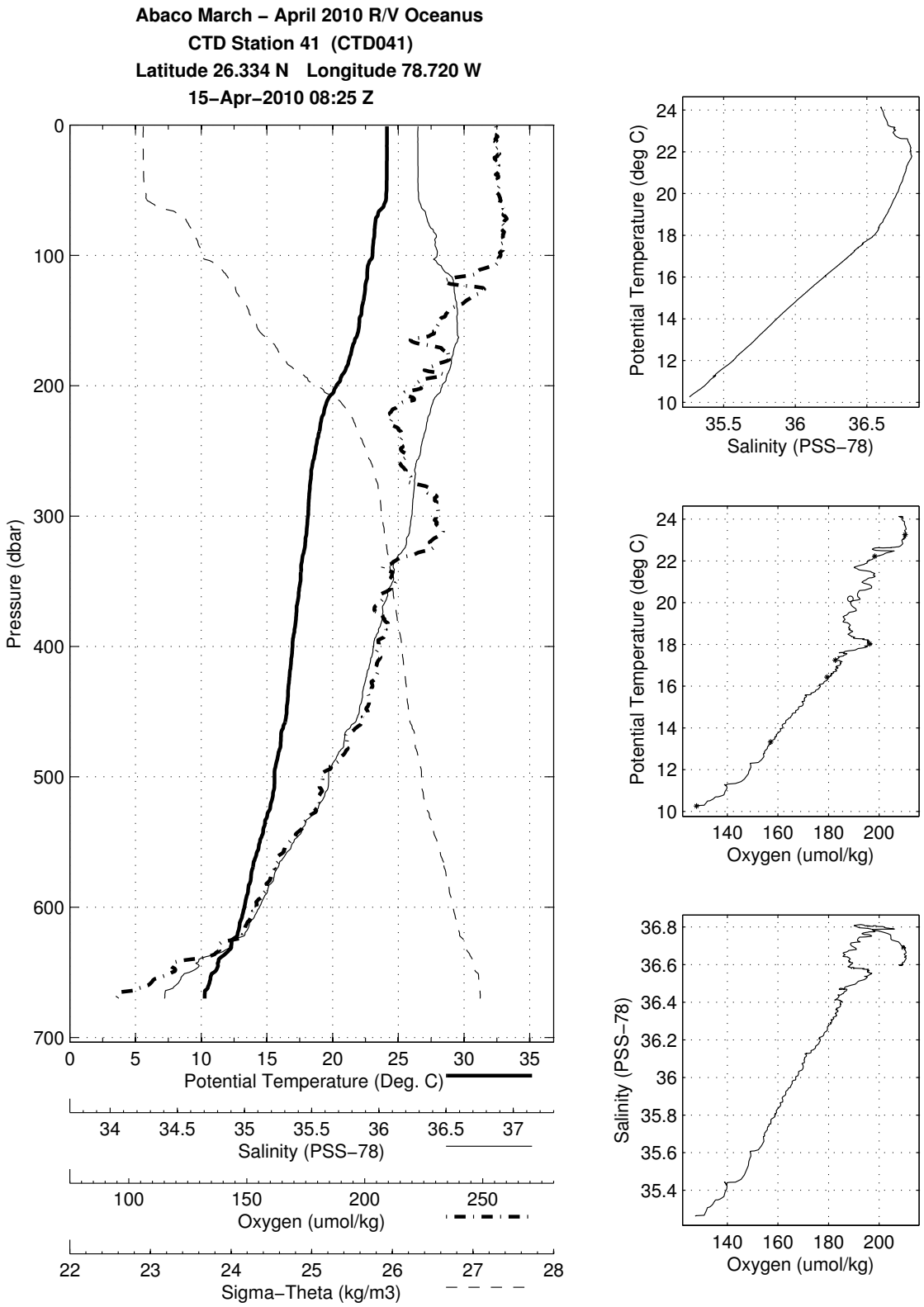

Potential Temperature (deg C)
Oxygen (umol/kg)


Salinity (PSS–78)
Oxygen (umol/kg)

Abaco March - April 2010 R/V Oceanus
CTD Station 41 (CTD041)
Latitude 26.334N Longitude 78.720W
15-Apr-2010 08:25Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	24.130	24.130	36.585	206.8	0.003	24.803
10	24.133	24.130	36.584	206.8	0.031	24.802
20	24.133	24.129	36.584	207.0	0.063	24.803
30	24.132	24.126	36.585	207.0	0.094	24.804
50	24.119	24.108	36.586	206.8	0.157	24.810
75	23.264	23.249	36.640	208.7	0.233	25.106
100	23.053	23.032	36.686	208.0	0.304	25.204
125	22.501	22.476	36.776	203.3	0.371	25.433
150	22.073	22.043	36.791	195.5	0.434	25.567
200	20.322	20.284	36.714	191.4	0.550	25.994
250	18.740	18.696	36.601	187.8	0.644	26.324
300	18.177	18.125	36.553	194.9	0.731	26.431
400	17.017	16.950	36.354	182.5	0.896	26.566
500	15.660	15.581	36.117	170.8	1.052	26.703
600	13.372	13.286	35.753	157.2	1.193	26.918

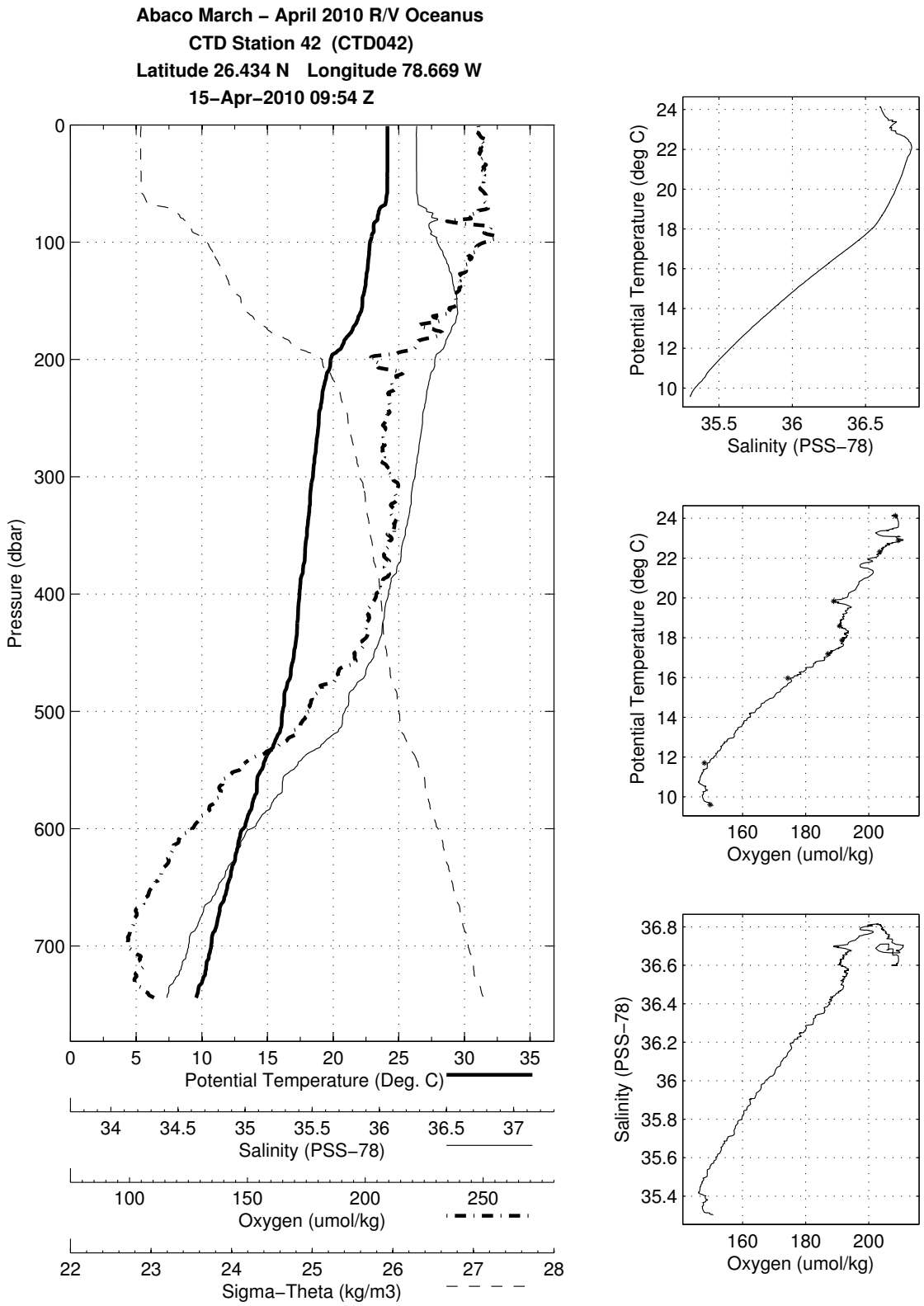
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
670	2	10.343	10.261	35.258	127.8
598	4	13.395	13.309	35.755	157.1
458	6	16.480	16.404	36.261	179.4
376	8	17.297	17.233	36.397	182.7
306	10	18.085	18.032	36.541	196.2
204	12	20.247	20.209	36.709	188.6
143	14	22.259	22.230	36.789	198.2
73	16	23.307	23.292	36.633	210.2
2	18	24.126	24.127	−999.000	NaN


Abaco March – April 2010 R/V Oceanus
CTD Station 41 (CTD041)
Latitude 26.334 N Longitude 78.720 W
15–Apr–2010 08:25 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)

Abaco March - April 2010 R/V Oceanus
CTD Station 42 (CTD042)
Latitude 26.434N Longitude 78.669W
15-Apr-2010 09:54Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	24.134	24.133	36.588	206.0	0.003	24.804
10	24.140	24.137	36.586	206.3	0.031	24.802
20	24.143	24.139	36.587	206.3	0.063	24.802
30	24.145	24.138	36.587	206.3	0.094	24.802
50	24.138	24.127	36.587	206.8	0.157	24.806
75	23.492	23.476	36.671	206.5	0.235	25.063
100	22.829	22.809	36.695	207.7	0.305	25.275
125	22.613	22.587	36.760	204.3	0.372	25.389
150	22.259	22.229	36.797	202.5	0.437	25.519
200	19.845	19.808	36.683	189.3	0.552	26.097
250	18.956	18.911	36.620	190.8	0.647	26.283
300	18.509	18.456	36.581	191.7	0.736	26.369
400	17.507	17.439	36.443	189.0	0.907	26.516
500	16.236	16.155	36.217	177.2	1.069	26.648
600	13.242	13.156	35.733	157.4	1.212	26.929
700	10.797	10.709	35.407	146.7	1.330	27.146

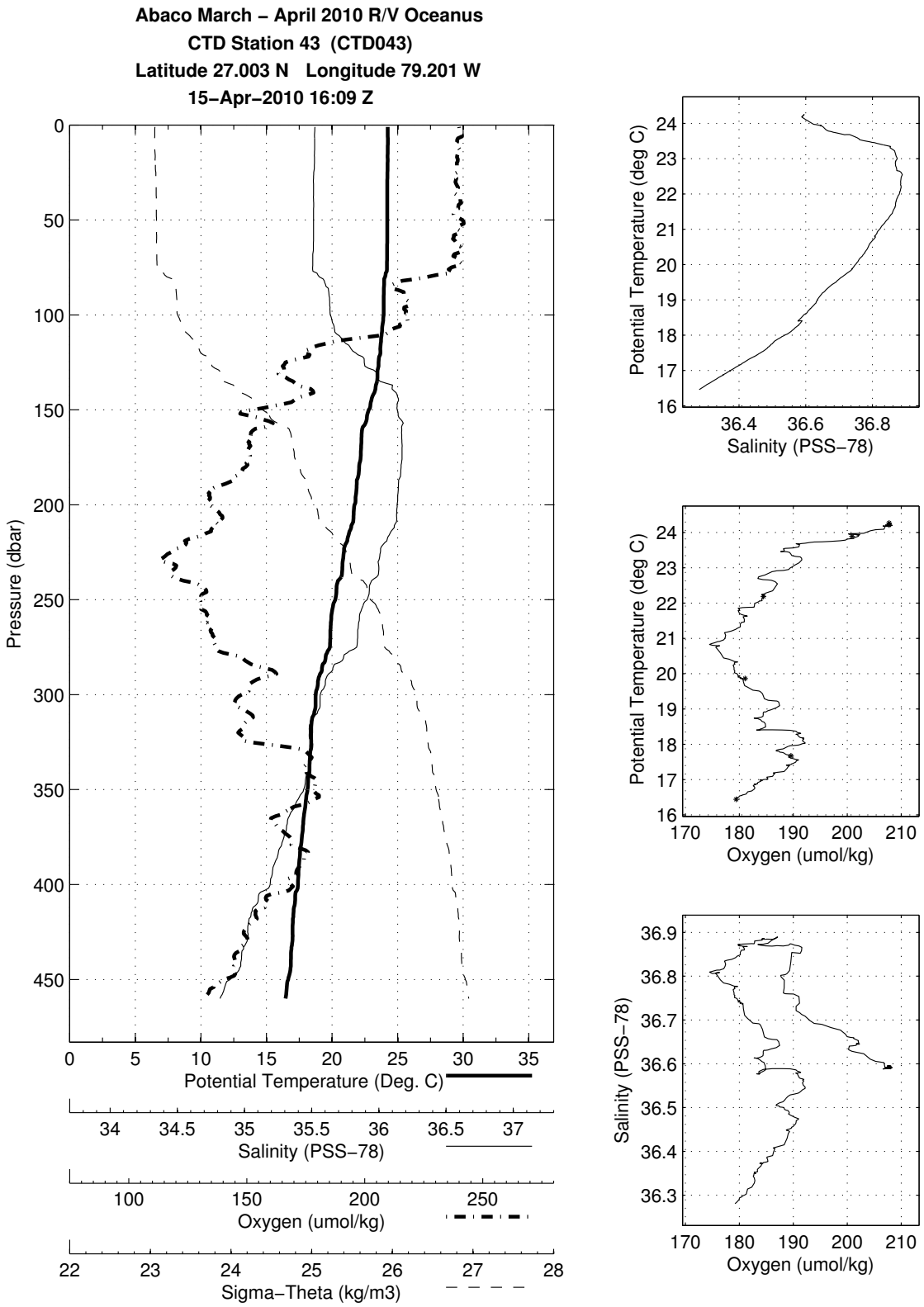
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
743	2	9.700	9.613	35.297	149.7
660	4	11.772	11.684	35.526	147.9
517	6	15.998	15.915	36.161	174.4
436	8	17.249	17.175	36.395	187.0
358	10	17.953	17.890	36.513	191.5
282	12	18.655	18.605	36.592	190.8
195	14	20.021	19.984	36.693	188.9
144	16	22.354	22.325	36.791	203.4
94	18	22.905	22.885	36.678	209.4
53	20	24.134	24.123	36.588	208.4
3	22	24.111	24.110	36.586	208.4


Abaco March – April 2010 R/V Oceanus
CTD Station 42 (CTD042)
Latitude 26.434 N Longitude 78.669 W
15–Apr–2010 09:54 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS–78)
Oxygen (umol/kg)
Sigma–Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS–78)
Oxygen (umol/kg)

Abaco March - April 2010 R/V Oceanus
CTD Station 43 (CTD043)
Latitude 27.003N Longitude 79.201W
15-Apr-2010 16:09Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	24.248	24.247	36.582	206.1	0.003	24.766
10	24.252	24.250	36.581	205.8	0.032	24.764
20	24.241	24.237	36.581	205.9	0.064	24.768
30	24.216	24.210	36.577	205.7	0.095	24.773
50	24.214	24.203	36.578	206.3	0.159	24.776
75	24.201	24.185	36.575	205.2	0.239	24.779
100	23.951	23.930	36.634	200.5	0.316	24.900
125	23.575	23.549	36.746	187.9	0.392	25.098
150	22.827	22.796	36.856	184.7	0.461	25.401
200	21.744	21.704	36.856	179.7	0.584	25.712
250	20.291	20.244	36.757	178.7	0.694	26.038
300	18.806	18.752	36.602	183.4	0.792	26.310
400	17.466	17.398	36.436	188.3	0.964	26.520

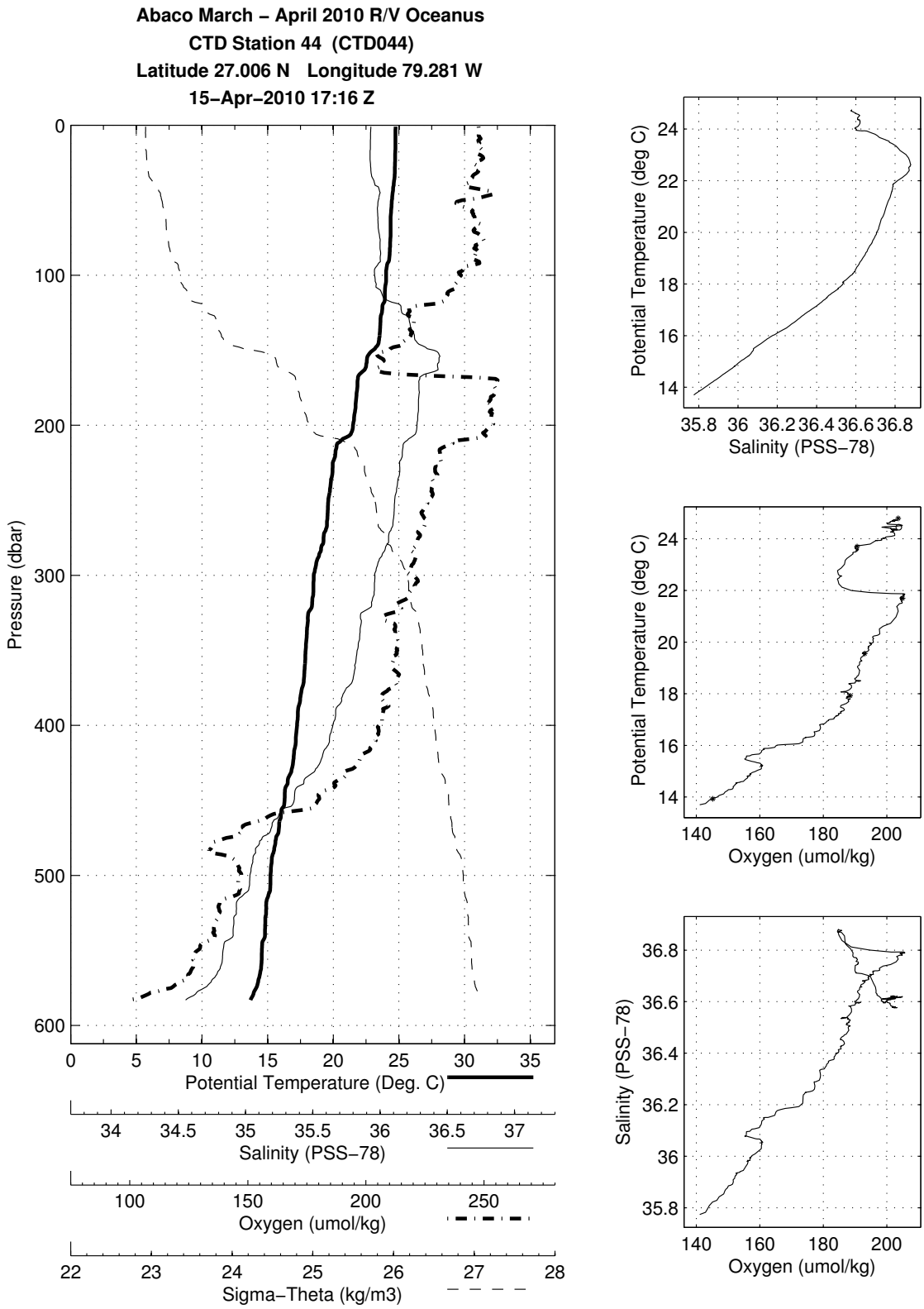
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
460	2	16.515	16.439	36.272	179.4
379	4	17.734	17.669	36.476	189.6
266	6	19.912	19.862	36.724	181.1
186	8	22.200	22.163	36.871	184.5
104	10	23.881	23.859	36.643	200.9
34	12	24.216	24.209	36.578	207.8
3	14	24.270	24.269	36.585	207.8


Abaco March – April 2010 R/V Oceanus
CTD Station 43 (CTD043)
Latitude 27.003 N Longitude 79.201 W
15–Apr–2010 16:09 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)

Abaco March - April 2010 R/V Oceanus
CTD Station 44 (CTD044)
Latitude 27.006N Longitude 79.281W
15-Apr-2010 17:16Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	24.742	24.741	36.566	200.6	0.003	24.604
10	24.741	24.738	36.564	200.5	0.033	24.604
20	24.716	24.711	36.563	201.0	0.067	24.611
30	24.694	24.687	36.566	200.4	0.100	24.621
50	24.477	24.467	36.599	198.5	0.165	24.712
75	24.374	24.358	36.605	201.2	0.246	24.750
100	24.045	24.024	36.583	197.9	0.326	24.833
125	23.734	23.708	36.701	189.2	0.403	25.017
150	23.046	23.015	36.842	186.4	0.475	25.327
200	21.544	21.505	36.767	203.6	0.598	25.701
250	19.667	19.621	36.671	193.0	0.703	26.138
300	18.567	18.514	36.585	190.0	0.797	26.358
400	17.306	17.238	36.403	184.4	0.968	26.535
500	15.296	15.218	36.043	160.8	1.124	26.728

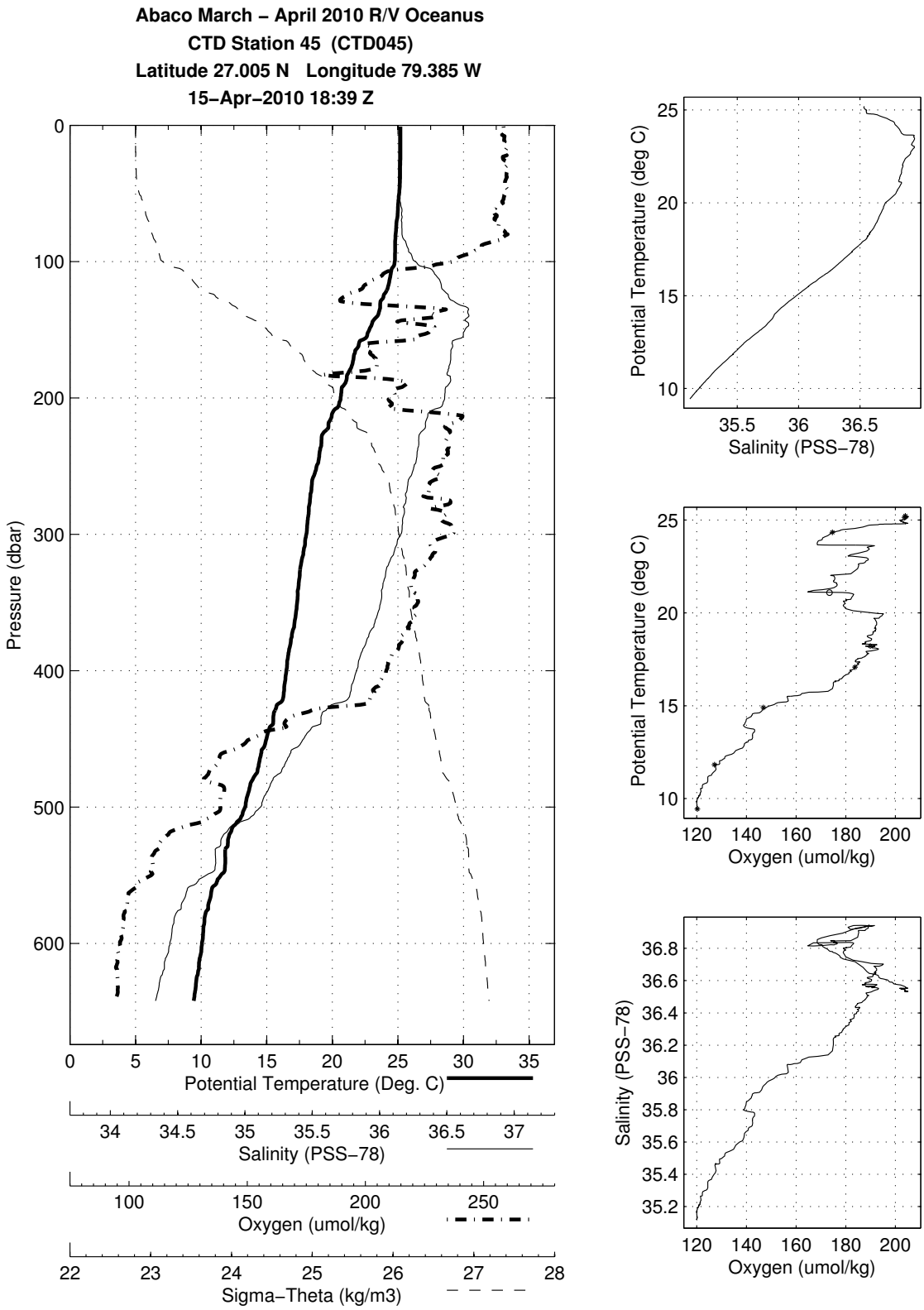
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
578	2	14.016	13.931	35.810	145.2
450	4	16.348	16.821	−999.000	NaN
348	6	17.989	17.929	36.516	188.4
269	8	19.582	19.533	36.664	193.1
188	10	21.717	21.679	36.774	204.9
125	12	23.726	23.700	36.708	190.6
54	14	24.475	24.464	36.601	203.8
4	16	24.795	24.795	36.555	203.6


Abaco March – April 2010 R/V Oceanus
CTD Station 44 (CTD044)
Latitude 27.006 N Longitude 79.281 W
15–Apr–2010 17:16 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)

Abaco March - April 2010 R/V Oceanus
CTD Station 45 (CTD045)
Latitude 27.005N Longitude 79.385W
15-Apr-2010 18:39Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	25.195	25.195	36.522	202.0	0.003	24.432
10	25.196	25.194	36.520	202.1	0.035	24.431
20	25.193	25.189	36.519	202.0	0.070	24.432
30	25.181	25.174	36.519	202.5	0.105	24.436
50	25.108	25.097	36.520	202.3	0.175	24.461
75	24.889	24.872	36.538	201.0	0.261	24.544
100	24.775	24.753	36.619	191.7	0.346	24.641
125	23.940	23.914	36.810	169.7	0.424	25.038
150	22.843	22.812	36.907	187.4	0.493	25.435
200	20.674	20.636	36.789	179.5	0.609	25.956
250	18.853	18.808	36.611	190.0	0.706	26.303
300	18.076	18.023	36.534	192.3	0.793	26.442
400	16.569	16.503	36.277	178.2	0.955	26.613
500	13.424	13.352	35.717	143.2	1.100	26.877
600	10.142	10.070	35.191	122.6	1.219	27.089

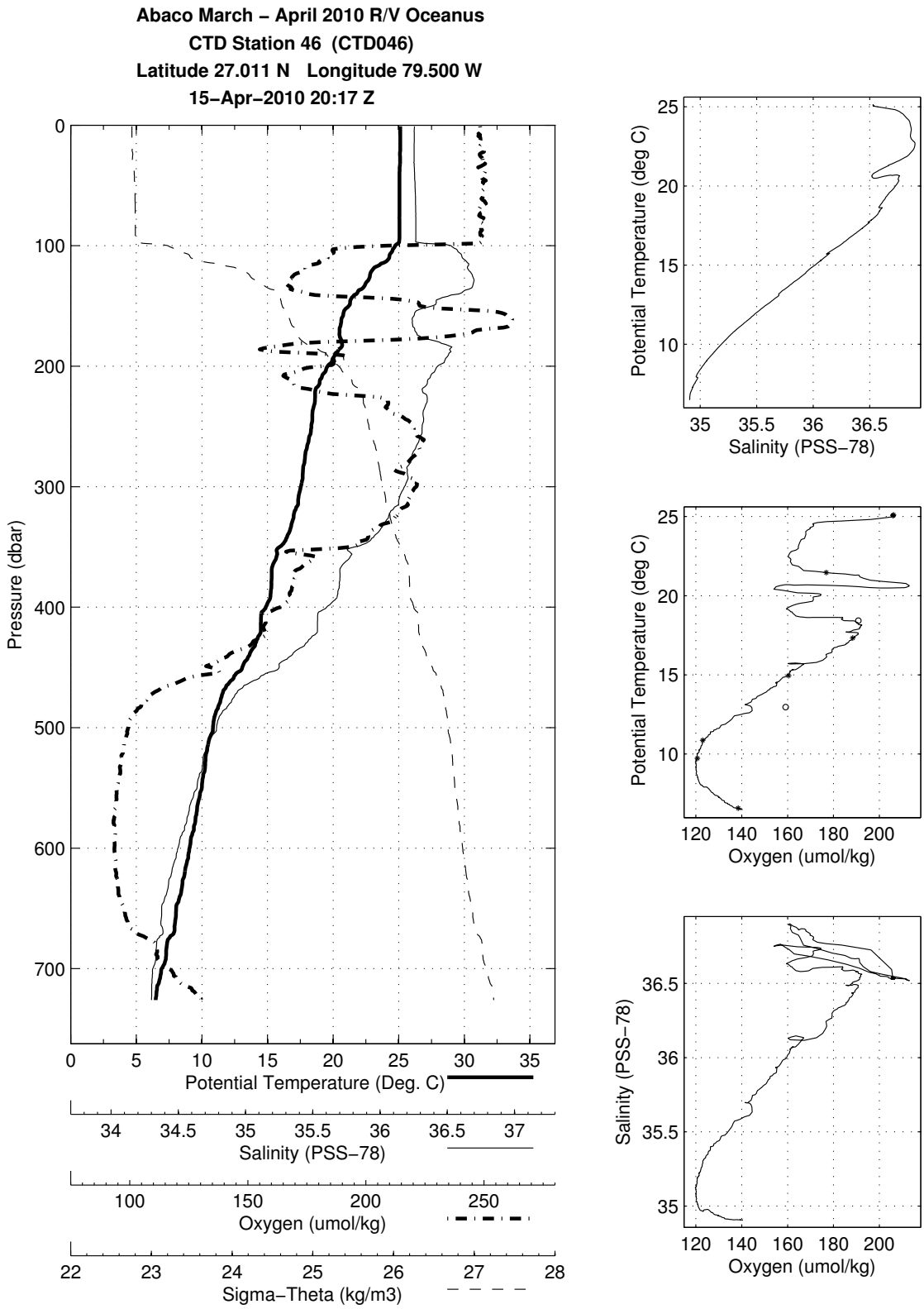
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
639	2	9.517	9.443	35.107	120.2
540	4	11.792	11.721	35.437	127.2
457	6	14.950	14.880	35.952	146.9
369	8	17.109	17.047	36.375	183.7
277	10	18.255	18.207	36.550	189.9
186	12	21.111	21.075	36.805	173.4
115	14	24.363	24.338	36.766	174.7
44	16	25.153	25.143	36.523	203.6
3	18	25.225	25.224	36.522	204.0


Abaco March – April 2010 R/V Oceanus
CTD Station 45 (CTD045)
Latitude 27.005 N Longitude 79.385 W
15–Apr–2010 18:39 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)

Abaco March - April 2010 R/V Oceanus
CTD Station 46 (CTD046)
Latitude 27.011N Longitude 79.500W
15-Apr-2010 20:17Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	25.120	25.120	36.518	203.5	0.003	24.453
10	25.120	25.118	36.517	203.5	0.035	24.452
20	25.116	25.111	36.517	203.8	0.069	24.454
30	25.115	25.109	36.517	203.4	0.104	24.455
50	25.067	25.056	36.523	203.8	0.174	24.476
75	25.068	25.052	36.527	203.2	0.261	24.480
100	24.744	24.723	36.745	185.1	0.347	24.745
125	22.827	22.802	36.878	162.3	0.420	25.416
150	21.221	21.192	36.628	190.7	0.481	25.681
200	19.617	19.581	36.663	169.1	0.591	26.142
250	18.387	18.343	36.568	189.2	0.681	26.388
300	17.587	17.536	36.458	190.0	0.764	26.504
400	14.929	14.868	35.980	159.4	0.915	26.757
500	10.909	10.846	35.301	125.1	1.042	27.038
600	9.128	9.060	35.063	122.2	1.150	27.158
700	7.005	6.937	34.909	134.7	1.244	27.356

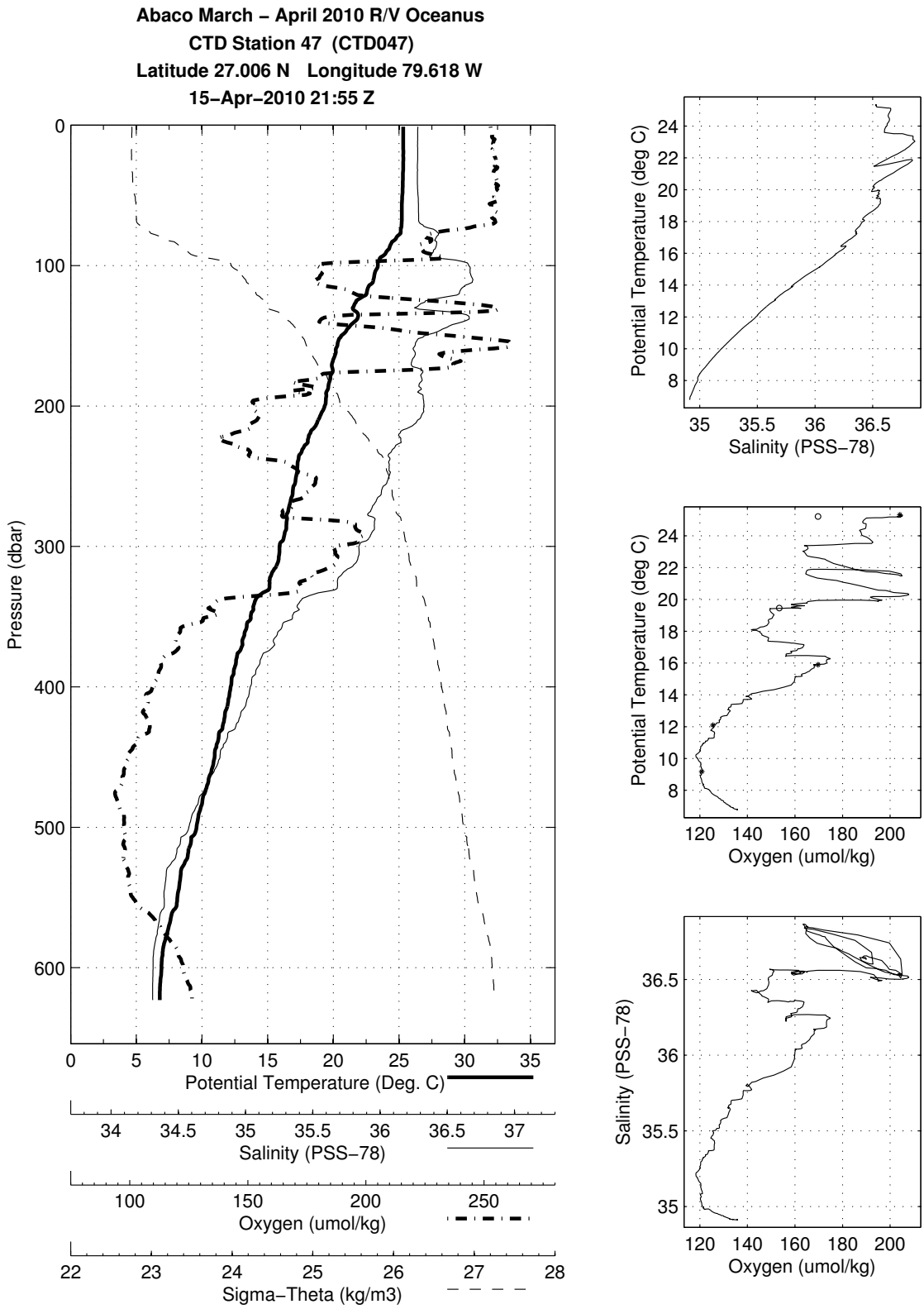
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
708	2	6.680	6.613	34.903	138.4
564	4	9.802	9.735	35.145	120.6
502	6	10.924	10.862	35.324	123.0
451	8	13.049	12.986	36.005	159.1
399	10	14.977	14.916	36.007	160.4
314	12	17.352	17.298	36.420	188.4
245	14	18.483	18.440	36.579	190.9
144	16	21.683	21.654	36.754	176.9
63	18	25.058	25.044	36.521	206.0
2	20	25.109	25.109	36.519	206.2


Abaco March – April 2010 R/V Oceanus
CTD Station 46 (CTD046)
Latitude 27.011 N Longitude 79.500 W
15–Apr–2010 20:17 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)

Abaco March - April 2010 R/V Oceanus
CTD Station 47 (CTD047)
Latitude 27.006N Longitude 79.618W
15-Apr-2010 21:55Z

Pressure	Temp90	PoTemp90	Salinity	Oxygen	DynHt	SigT
dbar	°C	°C	PSS-78	μmol·kg^{-1}	m^2·s^{-2}	kg·m^{-3}
1	25.316	25.316	36.517	201.2	0.004	24.391
10	25.322	25.320	36.516	201.9	0.035	24.389
20	25.330	25.326	36.515	201.9	0.071	24.387
30	25.327	25.320	36.514	202.6	0.106	24.388
50	25.256	25.245	36.518	202.1	0.177	24.414
75	25.148	25.132	36.625	192.5	0.265	24.530
100	23.405	23.384	36.828	166.1	0.343	25.208
125	21.768	21.743	36.564	187.6	0.410	25.479
150	20.613	20.584	36.557	192.8	0.469	25.793
200	19.375	19.339	36.555	150.6	0.575	26.122
250	17.205	17.163	36.343	163.3	0.663	26.506
300	15.946	15.898	36.160	168.8	0.740	26.664
400	12.233	12.180	35.500	128.6	0.873	26.943
500	9.633	9.575	35.126	122.6	0.986	27.122
600	6.974	6.916	34.910	136.1	1.078	27.360

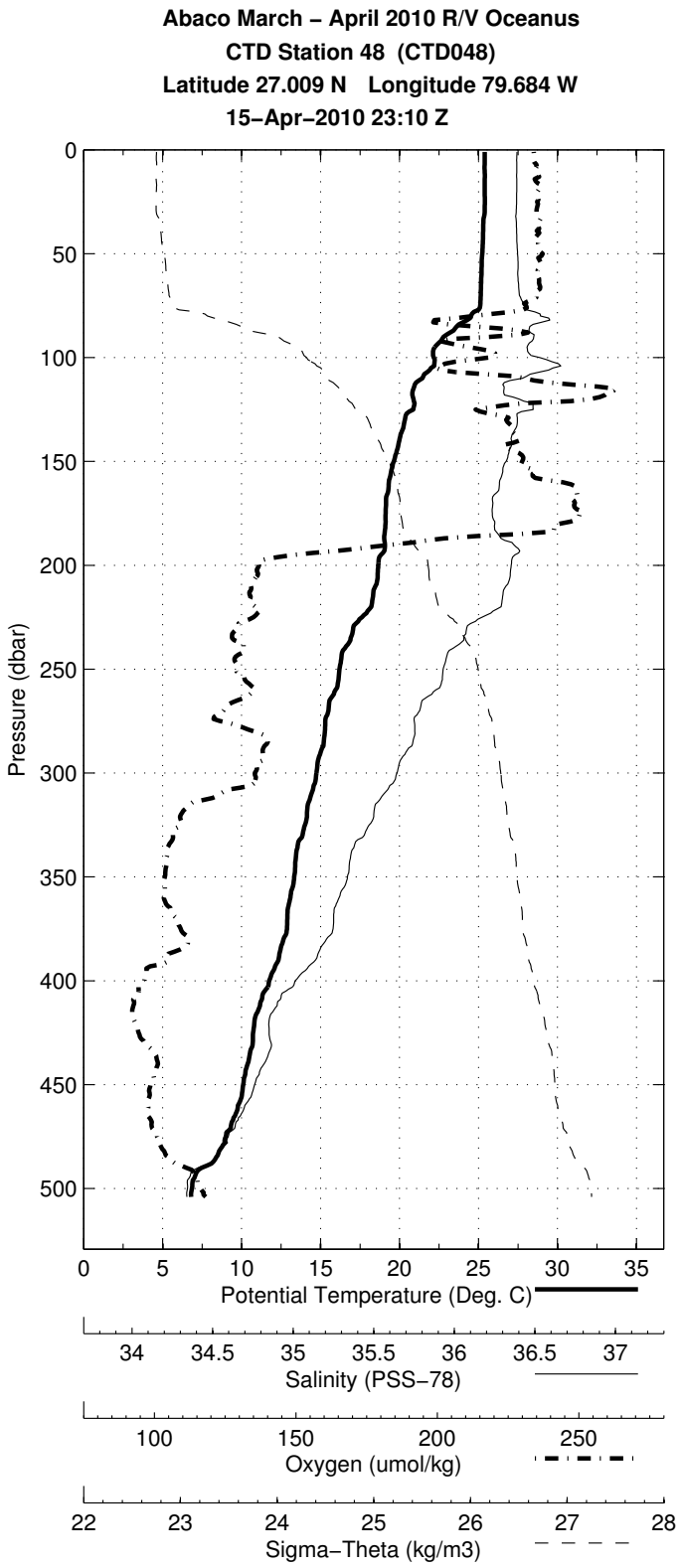
Pressure	Niskin	Temp90	PoTemp90	Salinity	Oxygen
dbar		°C	°C	PSS-78	μmol·kg^{-1}
619	2	6.848	6.789	34.907	NaN
513	4	9.283	9.226	35.081	120.8
407	6	12.180	12.126	35.502	125.5
304	8	15.984	15.935	36.174	169.7
190	10	19.573	19.538	36.565	153.4
133	12	21.886	21.860	36.806	NaN
53	14	25.230	25.219	36.520	169.7
2	16	25.316	25.316	36.517	204.1

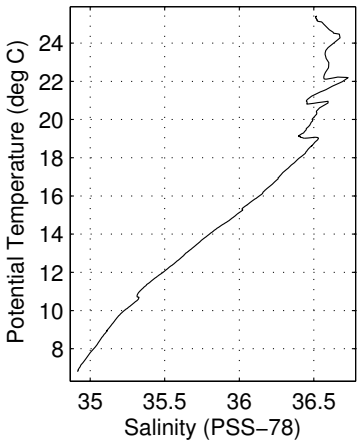

Abaco March – April 2010 R/V Oceanus
CTD Station 47 (CTD047)
Latitude 27.006 N Longitude 79.618 W
15–Apr–2010 21:55 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS–78)
Oxygen (umol/kg)
Sigma–Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS–78)
Potential Temperature (deg C)
Oxygen (umol/kg)
Salinity (PSS–78)
Oxygen (umol/kg)

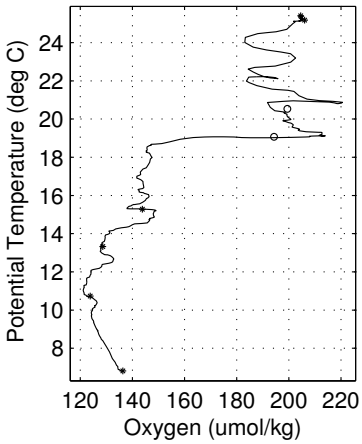
Abaco March - April 2010 R/V Oceanus
CTD Station 48 (CTD048)
Latitude 27.009N Longitude 79.684W
15-Apr-2010 23:10Z

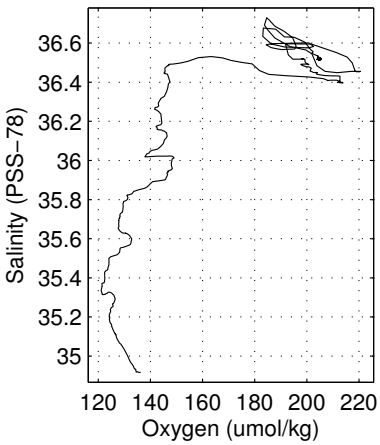
Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	25.393	25.393	36.504	201.6	0.004	24.357
10	25.390	25.388	36.503	202.1	0.036	24.358
20	25.396	25.392	36.503	202.5	0.071	24.357
30	25.392	25.385	36.500	202.2	0.107	24.357
50	25.250	25.239	36.507	203.3	0.178	24.407
75	25.128	25.112	36.537	200.4	0.266	24.469
100	22.191	22.171	36.615	193.5	0.340	25.397
125	20.888	20.864	36.583	193.5	0.401	25.737
150	19.663	19.636	36.453	200.8	0.455	25.967
200	18.689	18.654	36.478	149.1	0.554	26.240
250	16.234	16.193	36.149	143.7	0.639	26.587
300	14.785	14.740	35.926	147.4	0.712	26.744
400	11.789	11.737	35.433	125.7	0.841	26.976
500	6.905	6.857	34.914	137.6	0.942	27.371

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
500	2	6.866	6.819	34.910	136.4
424	4	10.797	10.744	35.309	123.8
352	6	13.350	13.300	35.683	128.6
274	8	15.306	15.264	36.004	143.9
184	10	19.048	19.015	36.406	194.3
124	12	20.670	20.647	36.556	199.5
63	14	25.184	25.170	36.510	206.1
3	16	25.402	25.401	36.505	204.5


Abaco March – April 2010 R/V Oceanus
CTD Station 48 (CTD048)
Latitude 27.009 N Longitude 79.684 W
15–Apr–2010 23:10 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS–78)
Oxygen (umol/kg)
Sigma–Theta (kg/m3)


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

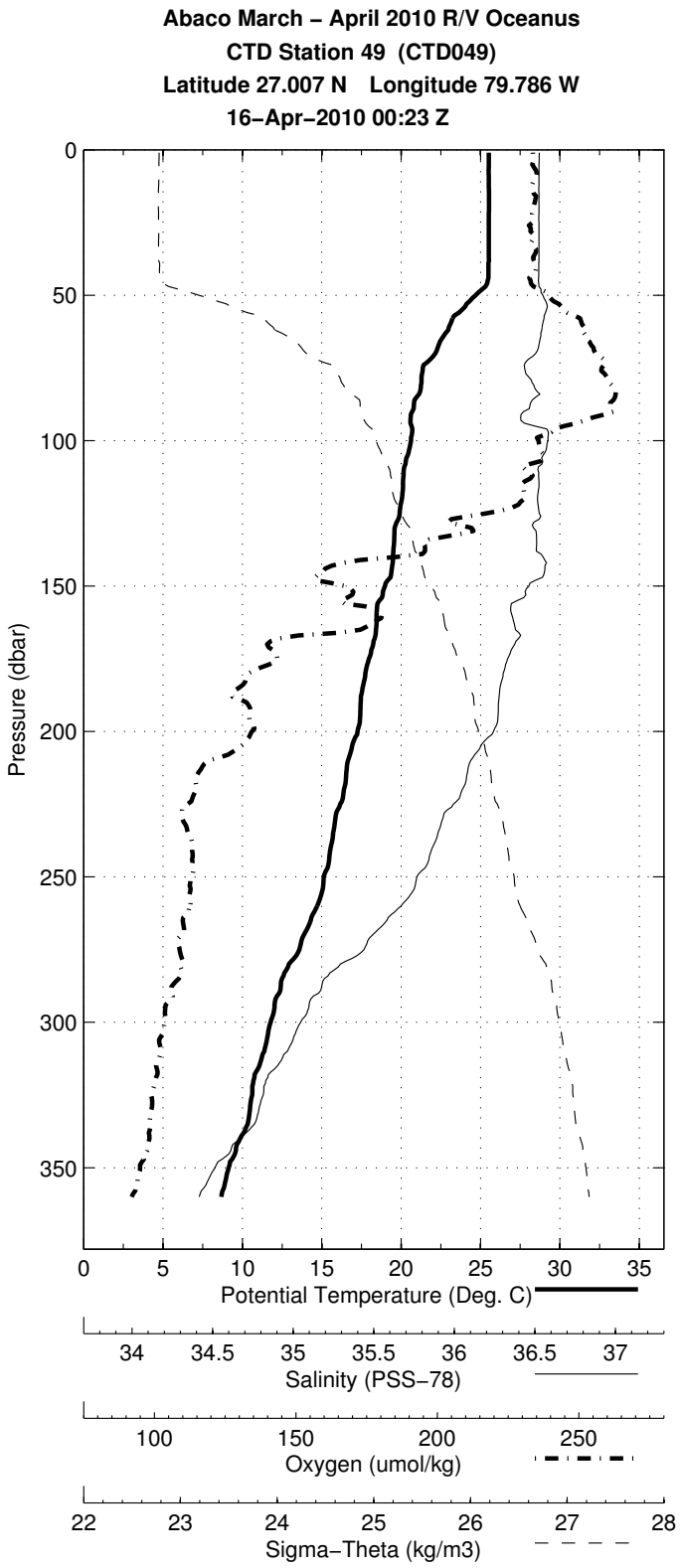

Potential Temperature (deg C)
Oxygen (umol/kg)

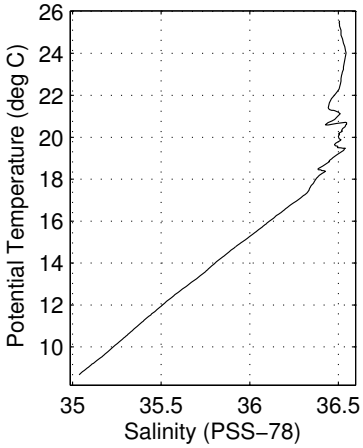

Salinity (PSS–78)
Oxygen (umol/kg)

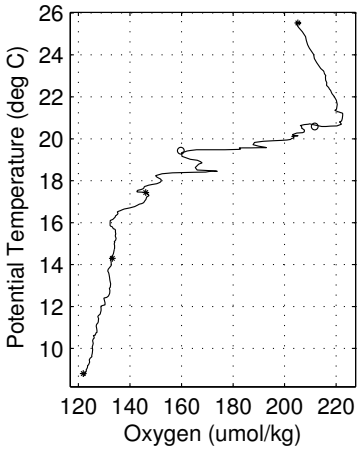
Abaco March - April 2010 R/V Oceanus
CTD Station 49 (CTD049)
Latitude 27.007N Longitude 79.786W
16-Apr-2010 00:23Z

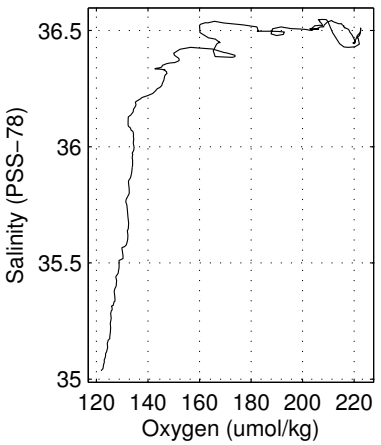
Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	25.520	25.519	36.495	203.0	0.004	24.311
10	25.521	25.519	36.493	203.4	0.036	24.310
20	25.534	25.529	36.493	203.0	0.072	24.307
30	25.532	25.525	36.493	203.2	0.108	24.308
50	24.699	24.688	36.510	206.2	0.180	24.578
75	21.378	21.363	36.432	218.8	0.252	25.485
100	20.639	20.620	36.535	206.6	0.311	25.766
125	19.928	19.904	36.496	196.3	0.366	25.929
150	19.007	18.980	36.451	166.2	0.416	26.136
200	17.286	17.253	36.299	147.9	0.504	26.451
250	15.167	15.129	35.968	135.7	0.581	26.690
300	11.813	11.774	35.467	130.6	0.644	26.995

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
357	2	8.845	8.807	35.052	121.9
265	4	14.338	14.298	35.860	133.1
193	6	17.468	17.436	36.322	146.1
143	8	19.445	19.419	36.526	159.7
93	10	20.684	20.666	36.450	211.7
43	12	25.517	25.507	36.497	205.1
2	14	25.511	25.511	36.495	205.1


Abaco March – April 2010 R/V Oceanus
CTD Station 49 (CTD049)
Latitude 27.007 N Longitude 79.786 W
16–Apr–2010 00:23 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS–78)
Oxygen (umol/kg)
Sigma–Theta (kg/m3)


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

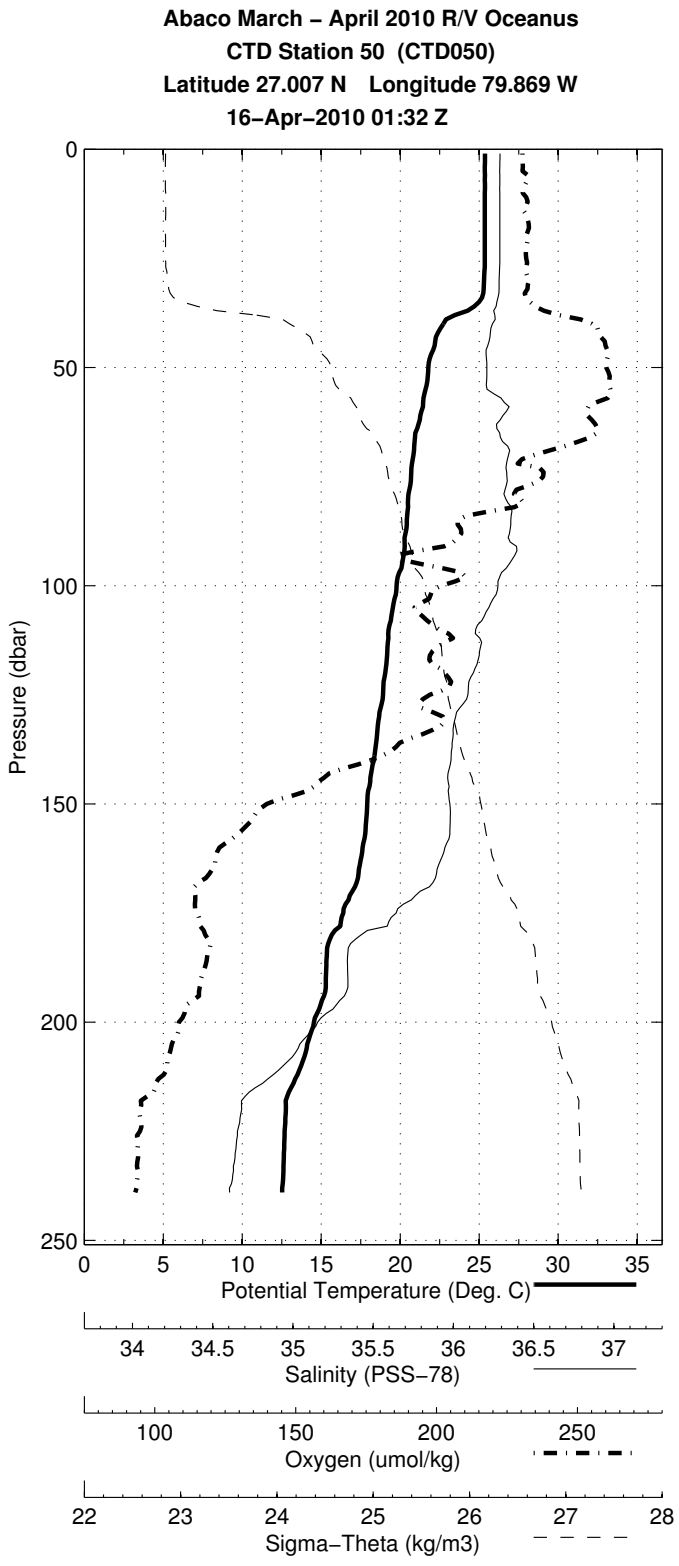

Potential Temperature (deg C)
Oxygen (umol/kg)

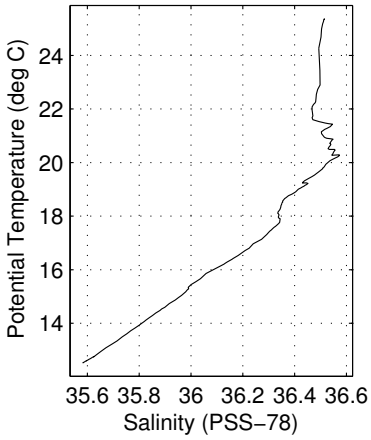

Salinity (PSS–78)
Oxygen (umol/kg)

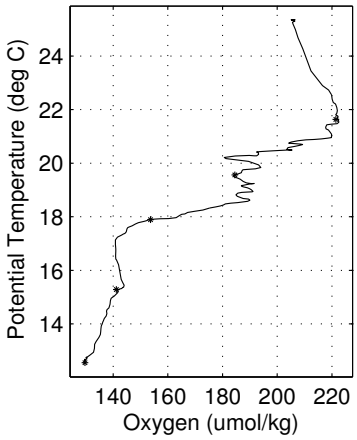
Abaco March - April 2010 R/V Oceanus
CTD Station 50 (CTD050)
Latitude 27.007N Longitude 79.869W
16-Apr-2010 01:32Z

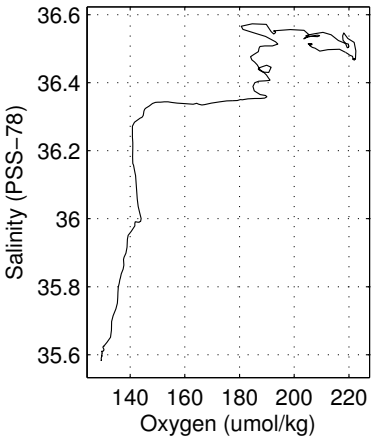
Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	25.359	25.358	36.502	203.0	0.004	24.366
10	25.354	25.352	36.500	203.2	0.036	24.368
20	25.360	25.356	36.501	203.7	0.071	24.366
30	25.317	25.311	36.498	204.2	0.107	24.379
50	21.793	21.784	36.457	220.6	0.167	25.386
75	20.704	20.689	36.526	208.1	0.227	25.741
100	19.790	19.772	36.496	189.2	0.281	25.964
125	18.934	18.912	36.393	187.5	0.331	26.109
150	17.939	17.913	36.331	157.5	0.378	26.314
200	14.563	14.534	35.877	139.7	0.455	26.751

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
238	2	12.586	12.554	35.584	129.7
194	4	15.205	15.175	35.978	141.1
152	6	17.941	17.914	36.332	153.7
103	8	19.617	19.598	36.477	184.5
53	10	21.591	21.580	36.468	221.5
3	12	25.337	25.339	−999.000	NaN


Abaco March – April 2010 R/V Oceanus
CTD Station 50 (CTD050)
Latitude 27.007 N Longitude 79.869 W
16–Apr–2010 01:32 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS–78)
Oxygen (umol/kg)
Sigma–Theta (kg/m3)


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

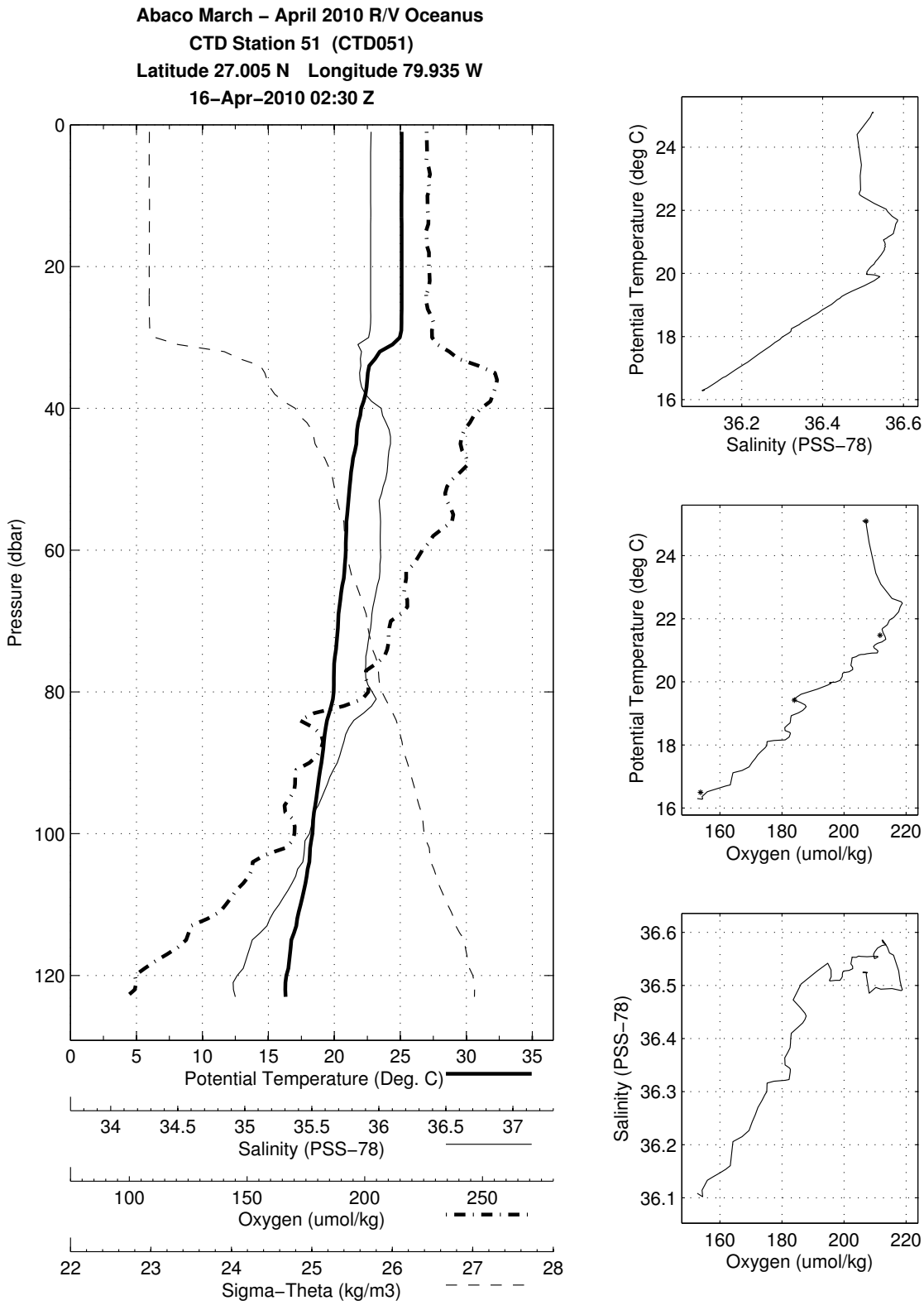

Potential Temperature (deg C)
Oxygen (umol/kg)


Salinity (PSS–78)
Oxygen (umol/kg)

Abaco March - April 2010 R/V Oceanus
CTD Station 51 (CTD051)
Latitude 27.005N Longitude 79.935W
16-Apr-2010 02:30Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	25.100	25.100	36.512	204.2	0.003	24.454
10	25.097	25.094	36.511	204.3	0.035	24.455
20	25.103	25.099	36.511	204.5	0.069	24.453
30	24.967	24.960	36.505	205.3	0.104	24.491
50	21.230	21.220	36.558	210.6	0.157	25.620
75	20.059	20.046	36.498	198.8	0.214	25.892
100	18.359	18.341	36.325	182.7	0.263	26.202

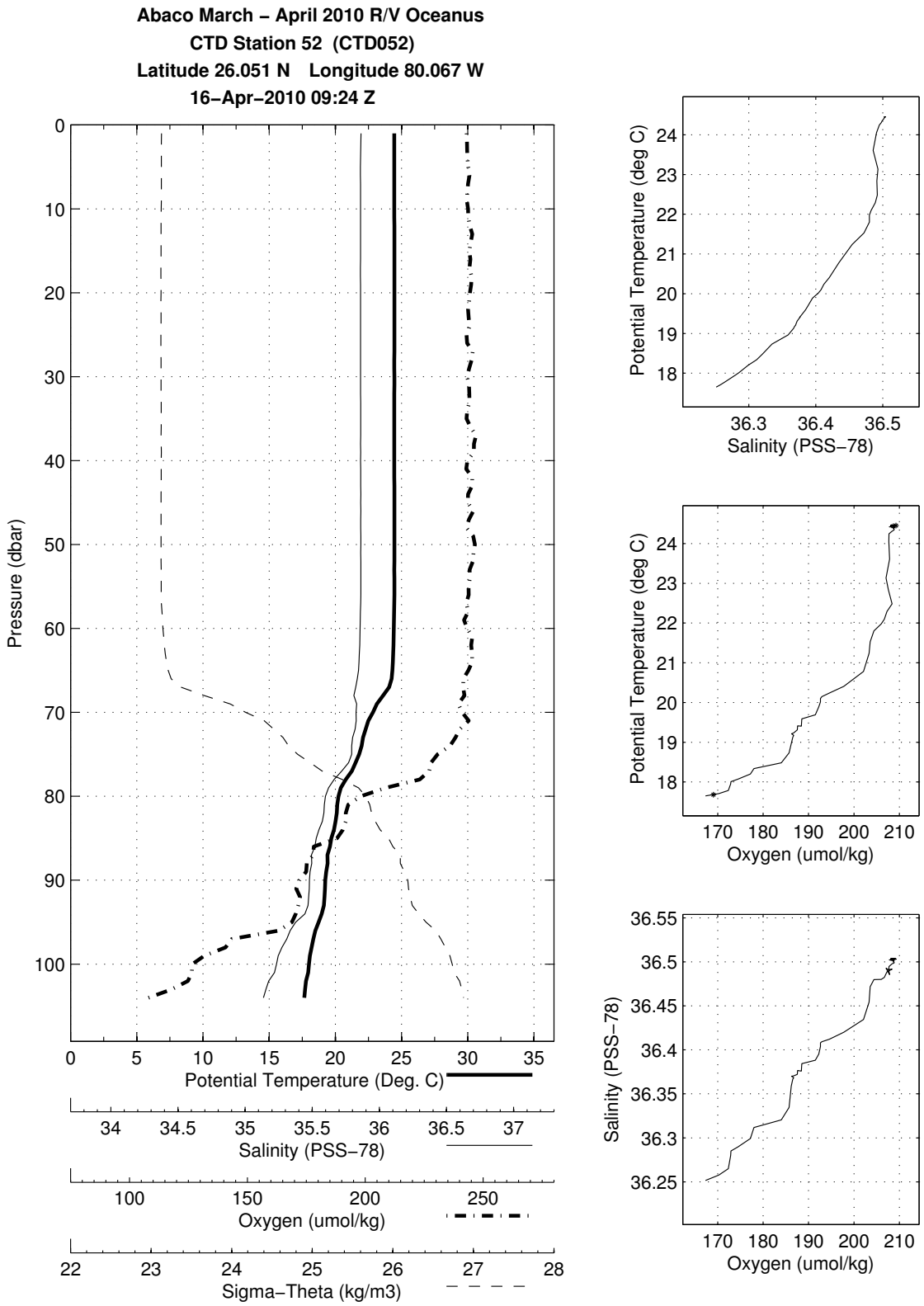
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
122	2	16.519	16.499	36.124	153.7
83	4	19.543	19.527	36.487	184.0
43	6	21.636	21.627	36.577	211.6
2	8	25.091	25.090	36.513	207.1


Abaco March – April 2010 R/V Oceanus
CTD Station 51 (CTD051)
Latitude 27.005 N Longitude 79.935 W
16–Apr–2010 02:30 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)

Abaco March - April 2010 R/V Oceanus
CTD Station 52 (CTD052)
Latitude 26.051N Longitude 80.067W
16-Apr-2010 09:24Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	24.449	24.449	36.491	206.5	0.003	24.636
10	24.452	24.450	36.490	206.6	0.033	24.635
20	24.459	24.455	36.490	206.8	0.066	24.633
30	24.460	24.454	36.490	206.5	0.099	24.634
50	24.466	24.455	36.490	207.2	0.165	24.634
75	21.816	21.801	36.467	204.4	0.244	25.389
100	18.025	18.008	36.274	173.6	0.296	26.246

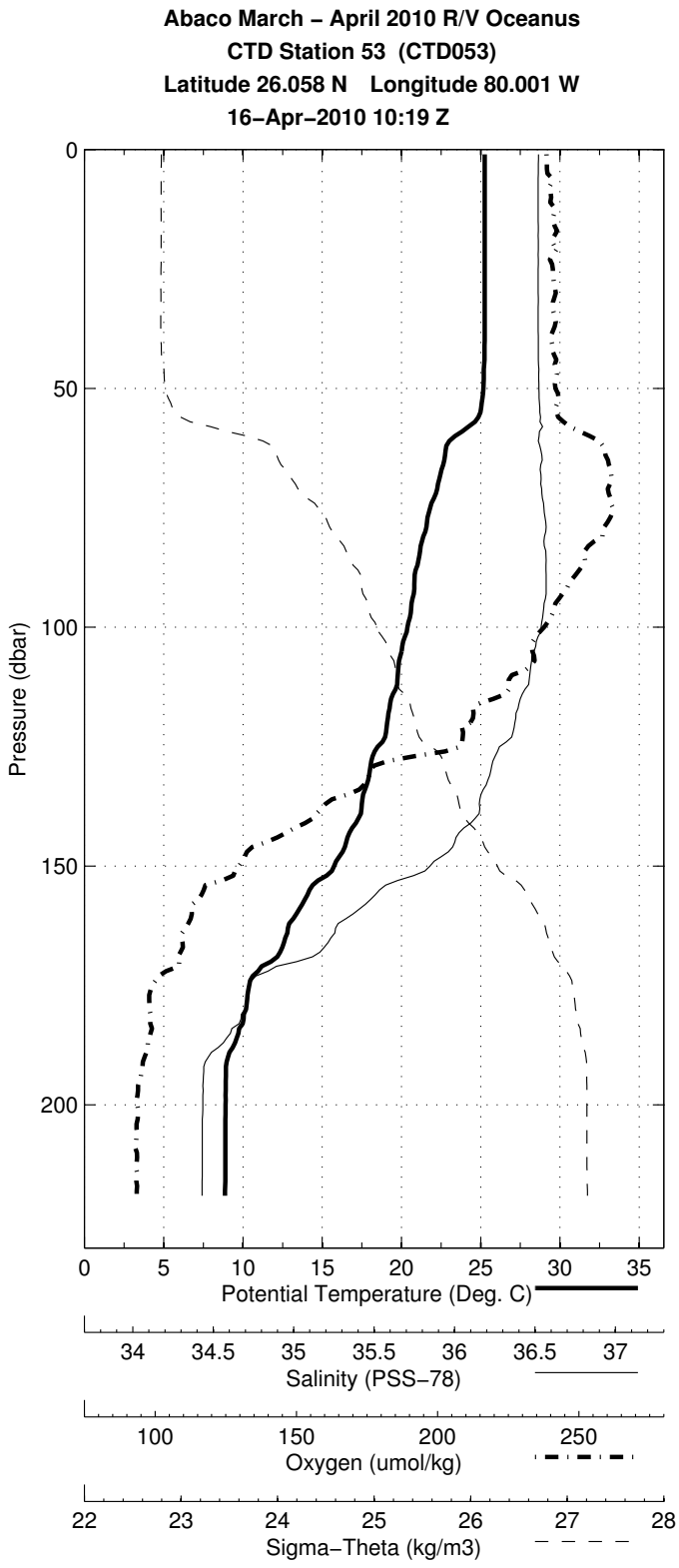
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
103	2	17.699	17.681	36.251	169.1
63	4	24.334	24.320	36.489	208.7
2	6	24.448	24.447	36.492	209.2

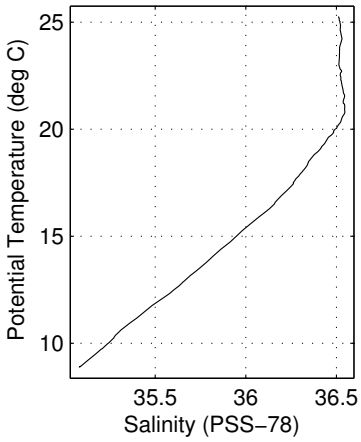

Abaco March – April 2010 R/V Oceanus
CTD Station 52 (CTD052)
Latitude 26.051 N Longitude 80.067 W
16–Apr–2010 09:24 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS–78)
Oxygen (umol/kg)
Sigma–Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS–78)
Potential Temperature (deg C)
Oxygen (umol/kg)
Salinity (PSS–78)
Oxygen (umol/kg)

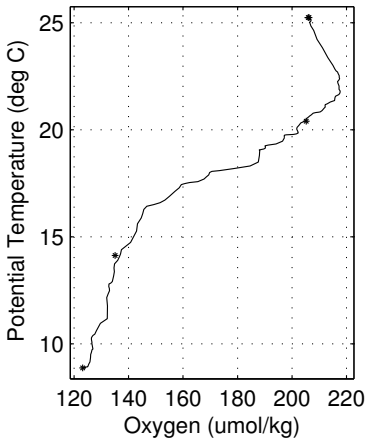
Abaco March - April 2010 R/V Oceanus
CTD Station 43 (CTD043)
Latitude 27.003N Longitude 79.201W
15-Apr-2010 16:09Z

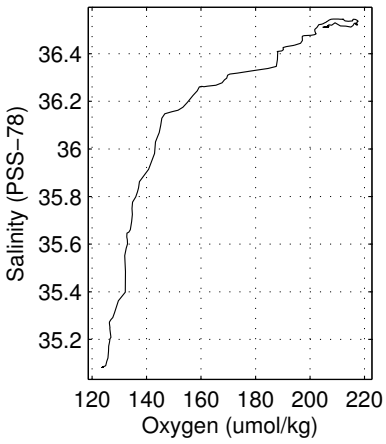
Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	24.248	24.247	36.582	206.1	0.003	24.766
10	24.252	24.250	36.581	205.8	0.032	24.764
20	24.241	24.237	36.581	205.9	0.064	24.768
30	24.216	24.210	36.577	205.7	0.095	24.773
50	24.214	24.203	36.578	206.3	0.159	24.776
75	24.201	24.185	36.575	205.2	0.239	24.779
100	23.951	23.930	36.634	200.5	0.316	24.900
125	23.575	23.549	36.746	187.9	0.392	25.098
150	22.827	22.796	36.856	184.7	0.461	25.401
200	21.744	21.704	36.856	179.7	0.584	25.712
250	20.291	20.244	36.757	178.7	0.694	26.038
300	18.806	18.752	36.602	183.4	0.792	26.310
400	17.466	17.398	36.436	188.3	0.964	26.520

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
460	2	16.515	16.439	36.272	179.4
379	4	17.734	17.669	36.476	189.6
266	6	19.912	19.862	36.724	181.1
186	8	22.200	22.163	36.871	184.5
104	10	23.881	23.859	36.643	200.9
34	12	24.216	24.209	36.578	207.8
3	14	24.270	24.269	36.585	207.8


Abaco March – April 2010 R/V Oceanus
CTD Station 53 (CTD053)
Latitude 26.058 N Longitude 80.001 W
16–Apr–2010 10:19 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS–78)
Oxygen (umol/kg)
Sigma–Theta (kg/m3)


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

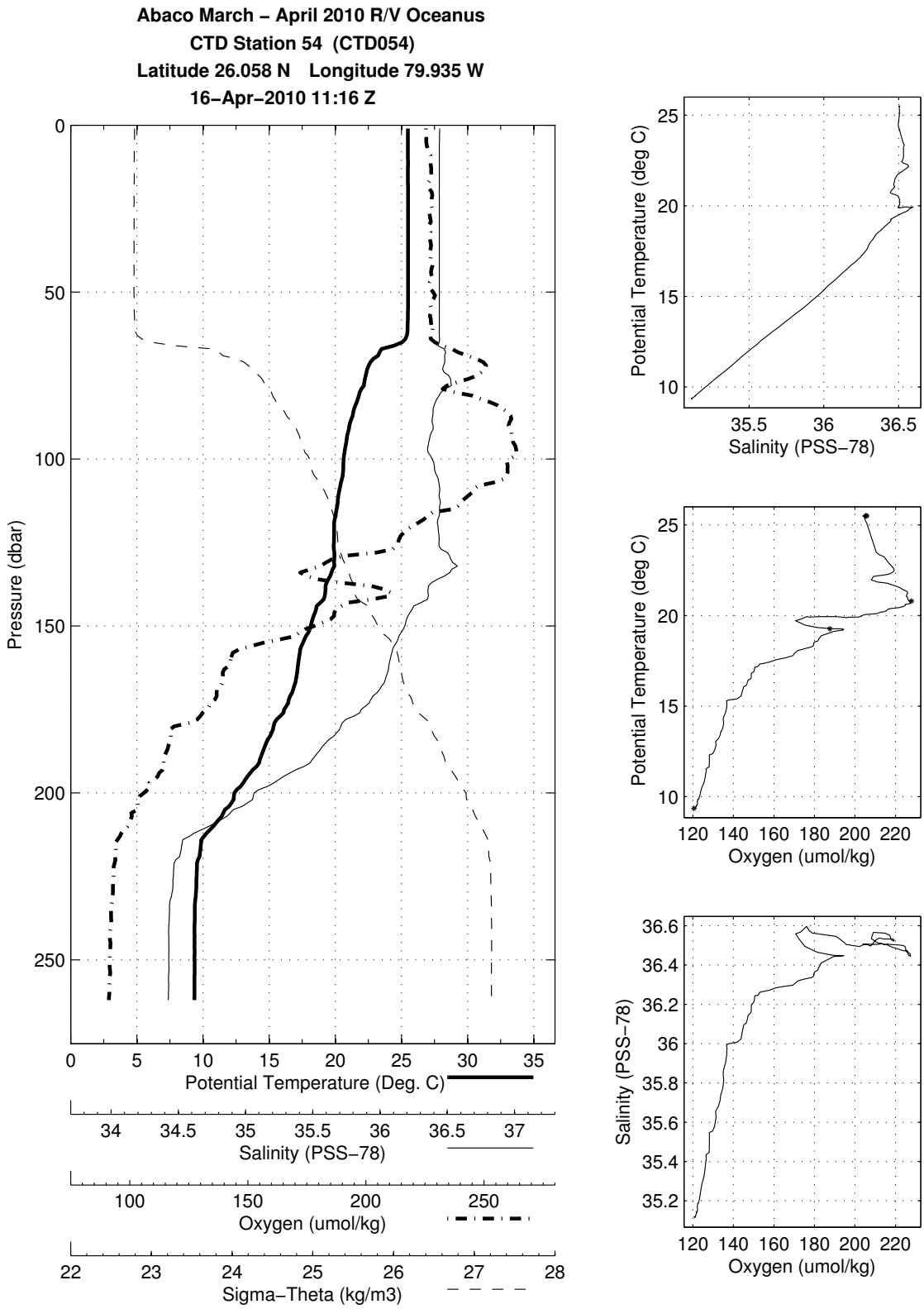

Potential Temperature (deg C)
Oxygen (umol/kg)


Salinity (PSS–78)
Oxygen (umol/kg)

Abaco March - April 2010 R/V Oceanus
CTD Station 44 (CTD044)
Latitude 27.006N Longitude 79.281W
15-Apr-2010 17:16Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	24.742	24.741	36.566	200.6	0.003	24.604
10	24.741	24.738	36.564	200.5	0.033	24.604
20	24.716	24.711	36.563	201.0	0.067	24.611
30	24.694	24.687	36.566	200.4	0.100	24.621
50	24.477	24.467	36.599	198.5	0.165	24.712
75	24.374	24.358	36.605	201.2	0.246	24.750
100	24.045	24.024	36.583	197.9	0.326	24.833
125	23.734	23.708	36.701	189.2	0.403	25.017
150	23.046	23.015	36.842	186.4	0.475	25.327
200	21.544	21.505	36.767	203.6	0.598	25.701
250	19.667	19.621	36.671	193.0	0.703	26.138
300	18.567	18.514	36.585	190.0	0.797	26.358
400	17.306	17.238	36.403	184.4	0.968	26.535
500	15.296	15.218	36.043	160.8	1.124	26.728

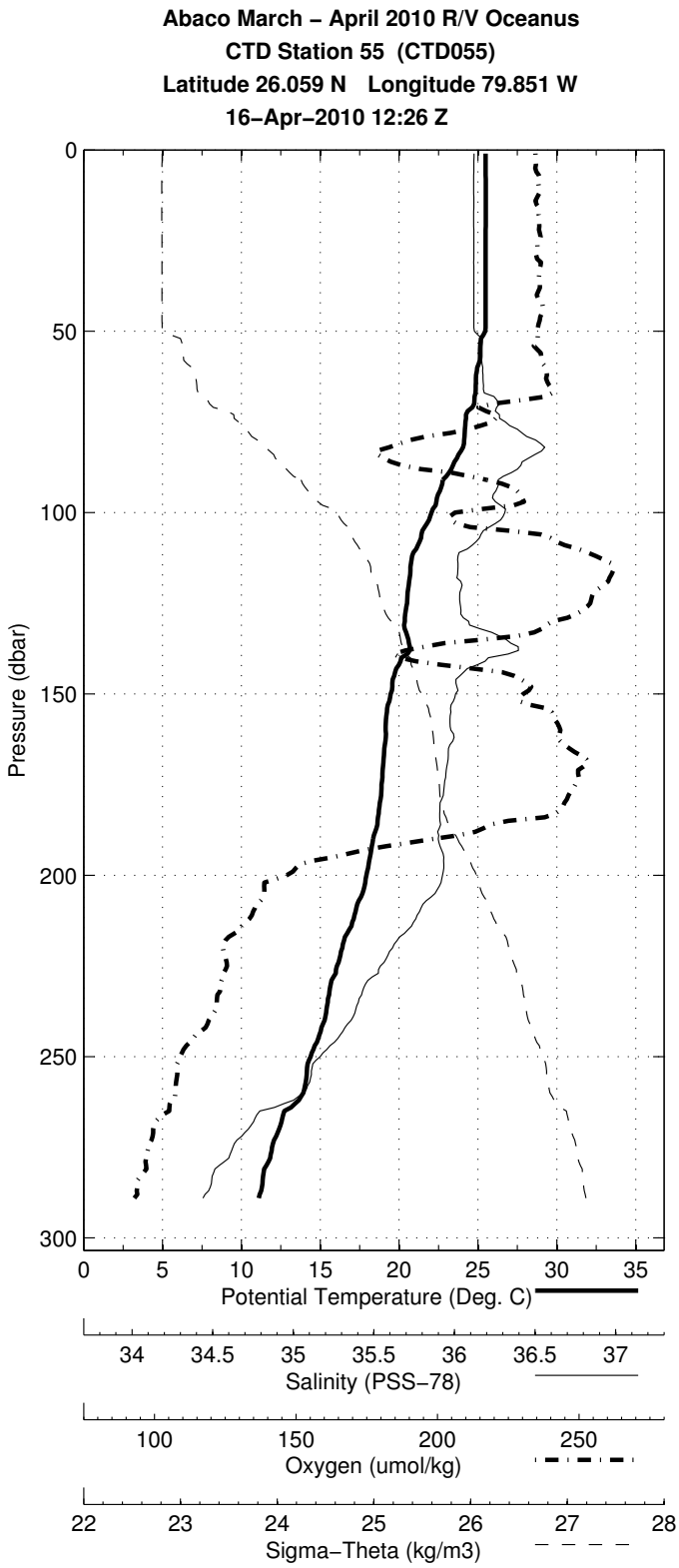
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
578	2	14.016	13.931	35.810	145.2
450	4	16.348	16.821	−999.000	NaN
348	6	17.989	17.929	36.516	188.4
269	8	19.582	19.533	36.664	193.1
188	10	21.717	21.679	36.774	204.9
125	12	23.726	23.700	36.708	190.6
54	14	24.475	24.464	36.601	203.8
4	16	24.795	24.795	36.555	203.6

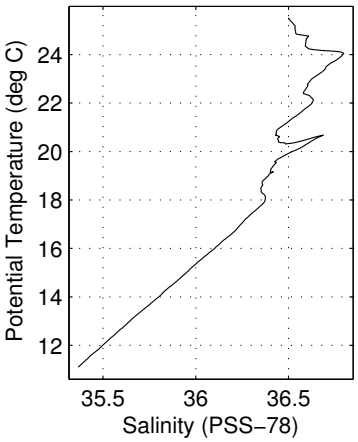

Abaco March – April 2010 R/V Oceanus
CTD Station 54 (CTD054)
Latitude 26.058 N Longitude 79.935 W
16–Apr–2010 11:16 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS–78)
Oxygen (umol/kg)
Sigma–Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS–78)
Potential Temperature (deg C)
Oxygen (umol/kg)
Salinity (PSS–78)
Oxygen (umol/kg)

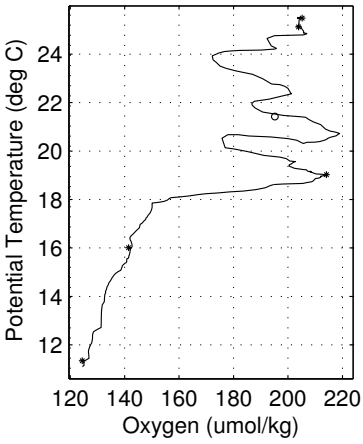
Abaco March - April 2010 R/V Oceanus
CTD Station 45 (CTD045)
Latitude 27.005N Longitude 79.385W
15-Apr-2010 18:39Z

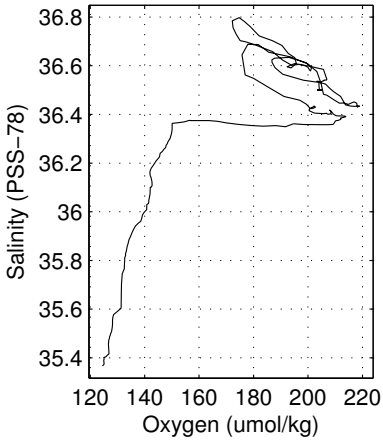
Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	25.195	25.195	36.522	202.0	0.003	24.432
10	25.196	25.194	36.520	202.1	0.035	24.431
20	25.193	25.189	36.519	202.0	0.070	24.432
30	25.181	25.174	36.519	202.5	0.105	24.436
50	25.108	25.097	36.520	202.3	0.175	24.461
75	24.889	24.872	36.538	201.0	0.261	24.544
100	24.775	24.753	36.619	191.7	0.346	24.641
125	23.940	23.914	36.810	169.7	0.424	25.038
150	22.843	22.812	36.907	187.4	0.493	25.435
200	20.674	20.636	36.789	179.5	0.609	25.956
250	18.853	18.808	36.611	190.0	0.706	26.303
300	18.076	18.023	36.534	192.3	0.793	26.442
400	16.569	16.503	36.277	178.2	0.955	26.613
500	13.424	13.352	35.717	143.2	1.100	26.877
600	10.142	10.070	35.191	122.6	1.219	27.089

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
639	2	9.517	9.443	35.107	120.2
540	4	11.792	11.721	35.437	127.2
457	6	14.950	14.880	35.952	146.9
369	8	17.109	17.047	36.375	183.7
277	10	18.255	18.207	36.550	189.9
186	12	21.111	21.075	36.805	173.4
115	14	24.363	24.338	36.766	174.7
44	16	25.153	25.143	36.523	203.6
3	18	25.225	25.224	36.522	204.0


Abaco March – April 2010 R/V Oceanus
CTD Station 55 (CTD055)
Latitude 26.059 N Longitude 79.851 W
16–Apr–2010 12:26 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS–78)
Oxygen (umol/kg)
Sigma–Theta (kg/m3)


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

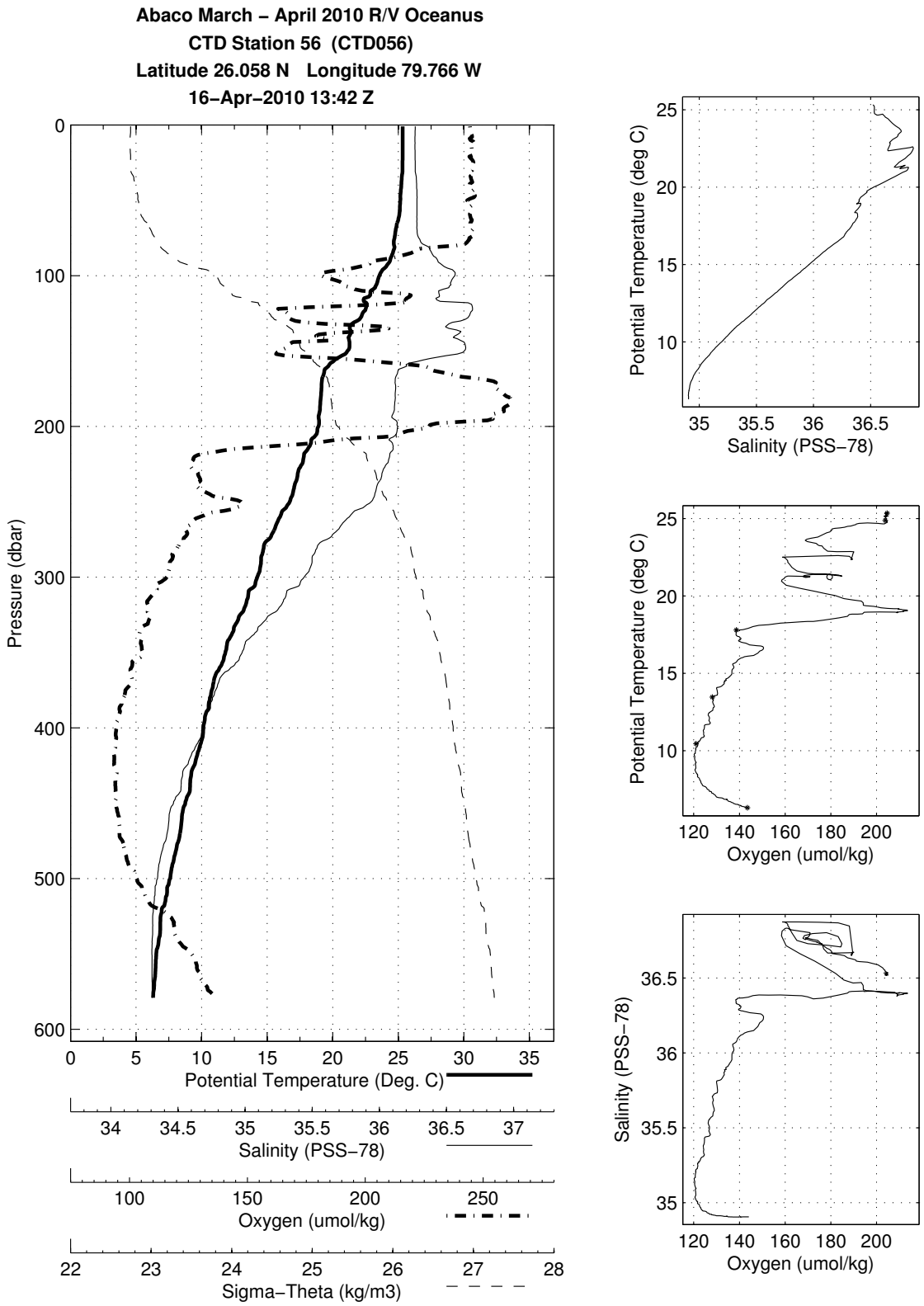

Potential Temperature (deg C)
Oxygen (umol/kg)


Salinity (PSS–78)
Oxygen (umol/kg)

Abaco March - April 2010 R/V Oceanus
CTD Station 46 (CTD046)
Latitude 27.011N Longitude 79.500W
15-Apr-2010 20:17Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	25.120	25.120	36.518	203.5	0.003	24.453
10	25.120	25.118	36.517	203.5	0.035	24.452
20	25.116	25.111	36.517	203.8	0.069	24.454
30	25.115	25.109	36.517	203.4	0.104	24.455
50	25.067	25.056	36.523	203.8	0.174	24.476
75	25.068	25.052	36.527	203.2	0.261	24.480
100	24.744	24.723	36.745	185.1	0.347	24.745
125	22.827	22.802	36.878	162.3	0.420	25.416
150	21.221	21.192	36.628	190.7	0.481	25.681
200	19.617	19.581	36.663	169.1	0.591	26.142
250	18.387	18.343	36.568	189.2	0.681	26.388
300	17.587	17.536	36.458	190.0	0.764	26.504
400	14.929	14.868	35.980	159.4	0.915	26.757
500	10.909	10.846	35.301	125.1	1.042	27.038
600	9.128	9.060	35.063	122.2	1.150	27.158
700	7.005	6.937	34.909	134.7	1.244	27.356

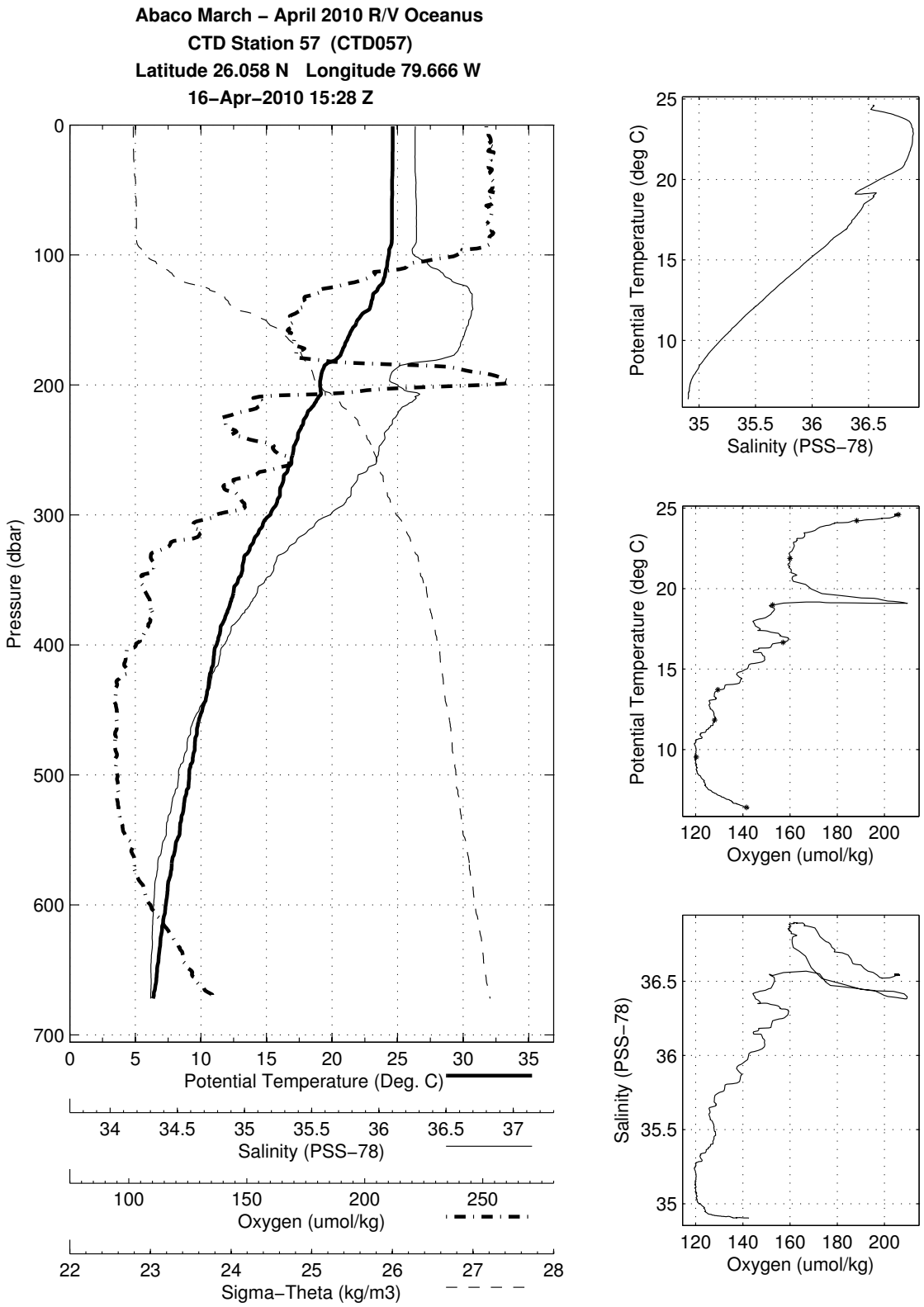
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
708	2	6.680	6.613	34.903	138.4
564	4	9.802	9.735	35.145	120.6
502	6	10.924	10.862	35.324	123.0
451	8	13.049	12.986	36.005	159.1
399	10	14.977	14.916	36.007	160.4
314	12	17.352	17.298	36.420	188.4
245	14	18.483	18.440	36.579	190.9
144	16	21.683	21.654	36.754	176.9
63	18	25.058	25.044	36.521	206.0
2	20	25.109	25.109	36.519	206.2


Abaco March – April 2010 R/V Oceanus
CTD Station 56 (CTD056)
Latitude 26.058 N Longitude 79.766 W
16–Apr–2010 13:42 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)

Abaco March - April 2010 R/V Oceanus
CTD Station 47 (CTD047)
Latitude 27.006N Longitude 79.618W
15-Apr-2010 21:55Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	25.316	25.316	36.517	201.2	0.004	24.391
10	25.322	25.320	36.516	201.9	0.035	24.389
20	25.330	25.326	36.515	201.9	0.071	24.387
30	25.327	25.320	36.514	202.6	0.106	24.388
50	25.256	25.245	36.518	202.1	0.177	24.414
75	25.148	25.132	36.625	192.5	0.265	24.530
100	23.405	23.384	36.828	166.1	0.343	25.208
125	21.768	21.743	36.564	187.6	0.410	25.479
150	20.613	20.584	36.557	192.8	0.469	25.793
200	19.375	19.339	36.555	150.6	0.575	26.122
250	17.205	17.163	36.343	163.3	0.663	26.506
300	15.946	15.898	36.160	168.8	0.740	26.664
400	12.233	12.180	35.500	128.6	0.873	26.943
500	9.633	9.575	35.126	122.6	0.986	27.122
600	6.974	6.916	34.910	136.1	1.078	27.360

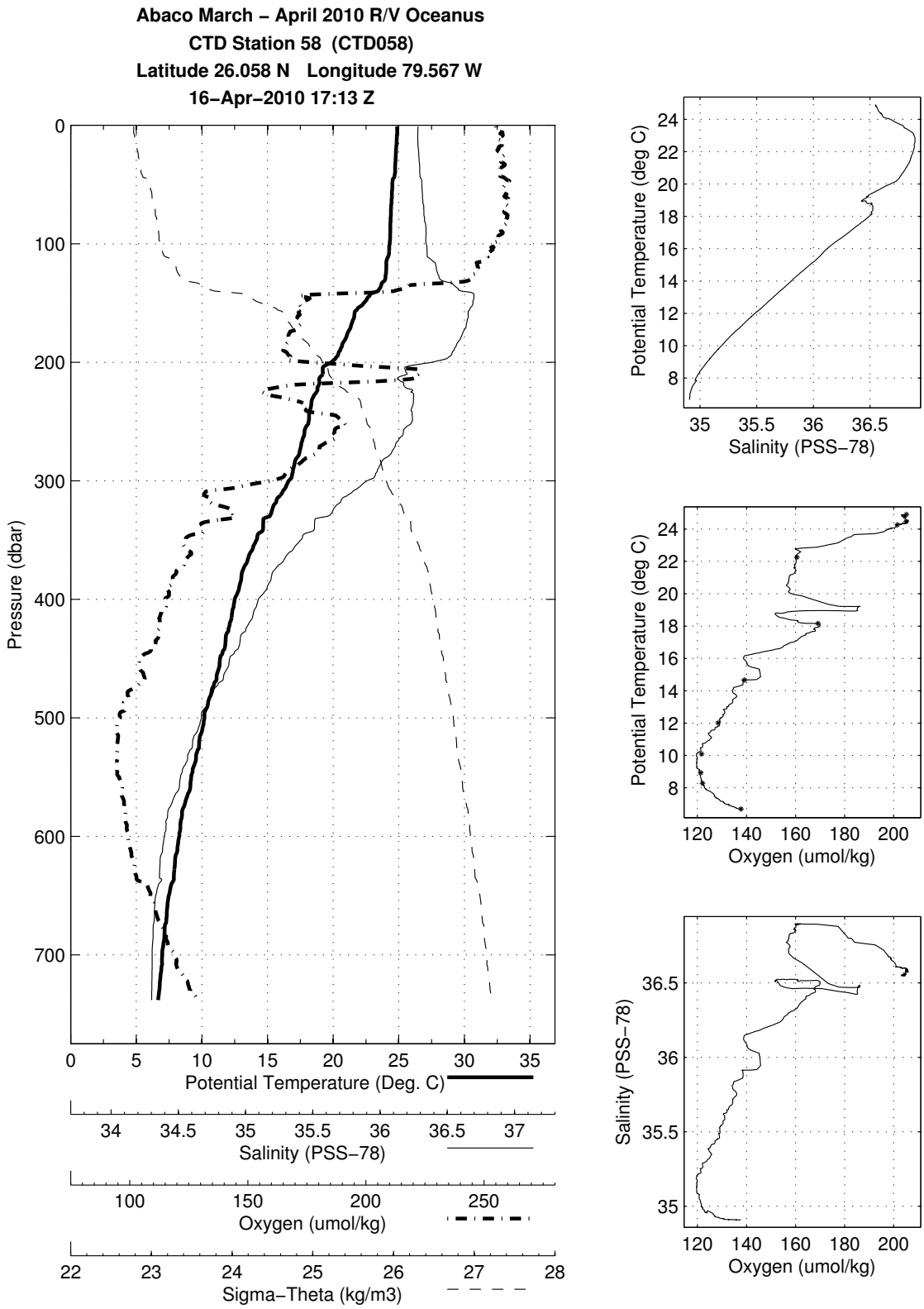
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
619	2	6.848	6.789	34.907	NaN
513	4	9.283	9.226	35.081	120.8
407	6	12.180	12.126	35.502	125.5
304	8	15.984	15.935	36.174	169.7
190	10	19.573	19.538	36.565	153.4
133	12	21.886	21.860	36.806	NaN
53	14	25.230	25.219	36.520	169.7
2	16	25.316	25.316	36.517	204.1


Abaco March – April 2010 R/V Oceanus
CTD Station 57 (CTD057)
Latitude 26.058 N Longitude 79.666 W
16–Apr–2010 15:28 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)

Abaco March - April 2010 R/V Oceanus
CTD Station 48 (CTD048)
Latitude 27.009N Longitude 79.684W
15-Apr-2010 23:10Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	25.393	25.393	36.504	201.6	0.004	24.357
10	25.390	25.388	36.503	202.1	0.036	24.358
20	25.396	25.392	36.503	202.5	0.071	24.357
30	25.392	25.385	36.500	202.2	0.107	24.357
50	25.250	25.239	36.507	203.3	0.178	24.407
75	25.128	25.112	36.537	200.4	0.266	24.469
100	22.191	22.171	36.615	193.5	0.340	25.397
125	20.888	20.864	36.583	193.5	0.401	25.737
150	19.663	19.636	36.453	200.8	0.455	25.967
200	18.689	18.654	36.478	149.1	0.554	26.240
250	16.234	16.193	36.149	143.7	0.639	26.587
300	14.785	14.740	35.926	147.4	0.712	26.744
400	11.789	11.737	35.433	125.7	0.841	26.976
500	6.905	6.857	34.914	137.6	0.942	27.371

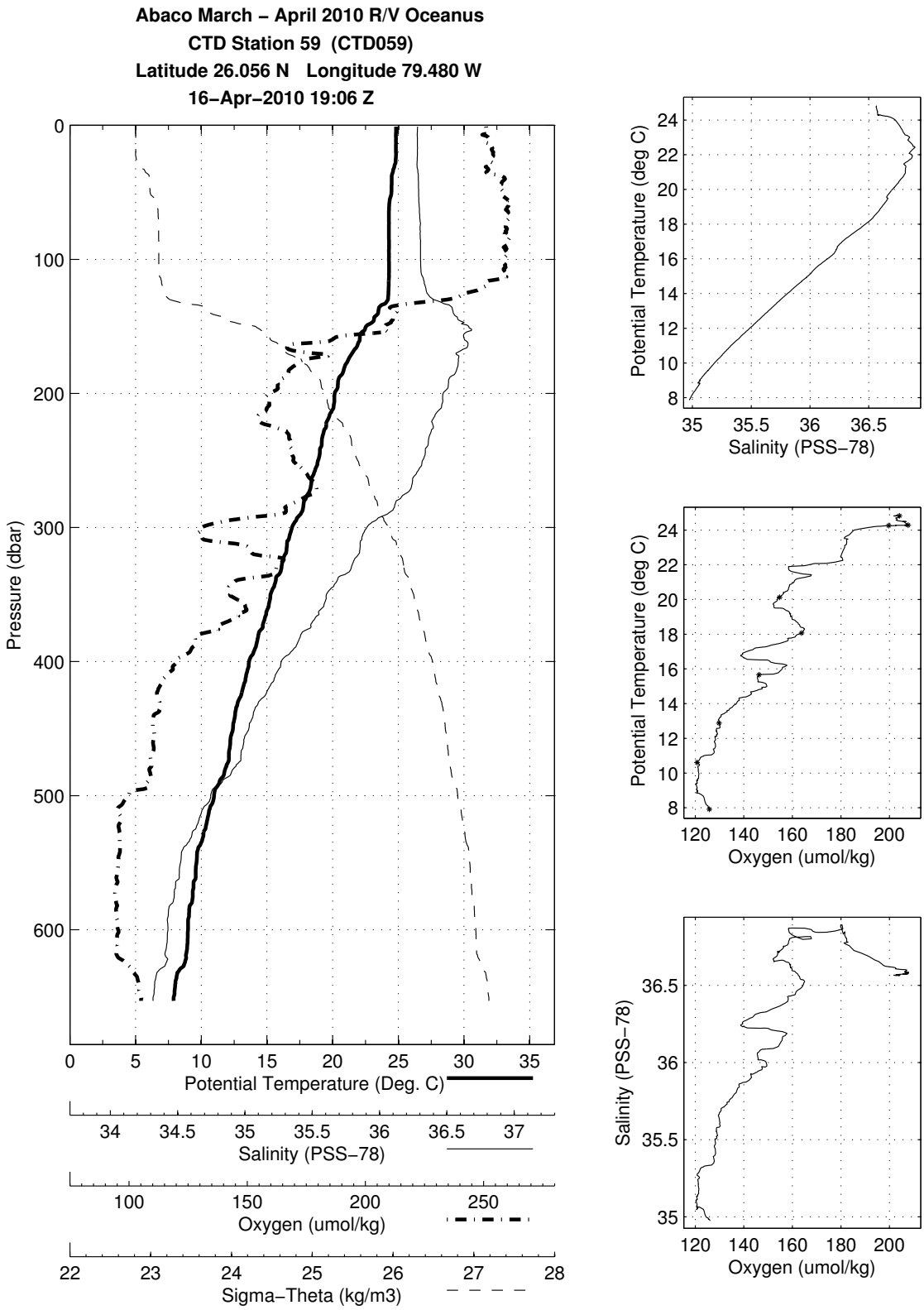
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
500	2	6.866	6.819	34.910	136.4
424	4	10.797	10.744	35.309	123.8
352	6	13.350	13.300	35.683	128.6
274	8	15.306	15.264	36.004	143.9
184	10	19.048	19.015	36.406	194.3
124	12	20.670	20.647	36.556	199.5
63	14	25.184	25.170	36.510	206.1
3	16	25.402	25.401	36.505	204.5


Abaco March – April 2010 R/V Oceanus
CTD Station 58 (CTD058)
Latitude 26.058 N Longitude 79.567 W
16–Apr–2010 17:13 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)

Abaco March - April 2010 R/V Oceanus
CTD Station 49 (CTD049)
Latitude 27.007N Longitude 79.786W
16-Apr-2010 00:23Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	25.520	25.519	36.495	203.0	0.004	24.311
10	25.521	25.519	36.493	203.4	0.036	24.310
20	25.534	25.529	36.493	203.0	0.072	24.307
30	25.532	25.525	36.493	203.2	0.108	24.308
50	24.699	24.688	36.510	206.2	0.180	24.578
75	21.378	21.363	36.432	218.8	0.252	25.485
100	20.639	20.620	36.535	206.6	0.311	25.766
125	19.928	19.904	36.496	196.3	0.366	25.929
150	19.007	18.980	36.451	166.2	0.416	26.136
200	17.286	17.253	36.299	147.9	0.504	26.451
250	15.167	15.129	35.968	135.7	0.581	26.690
300	11.813	11.774	35.467	130.6	0.644	26.995

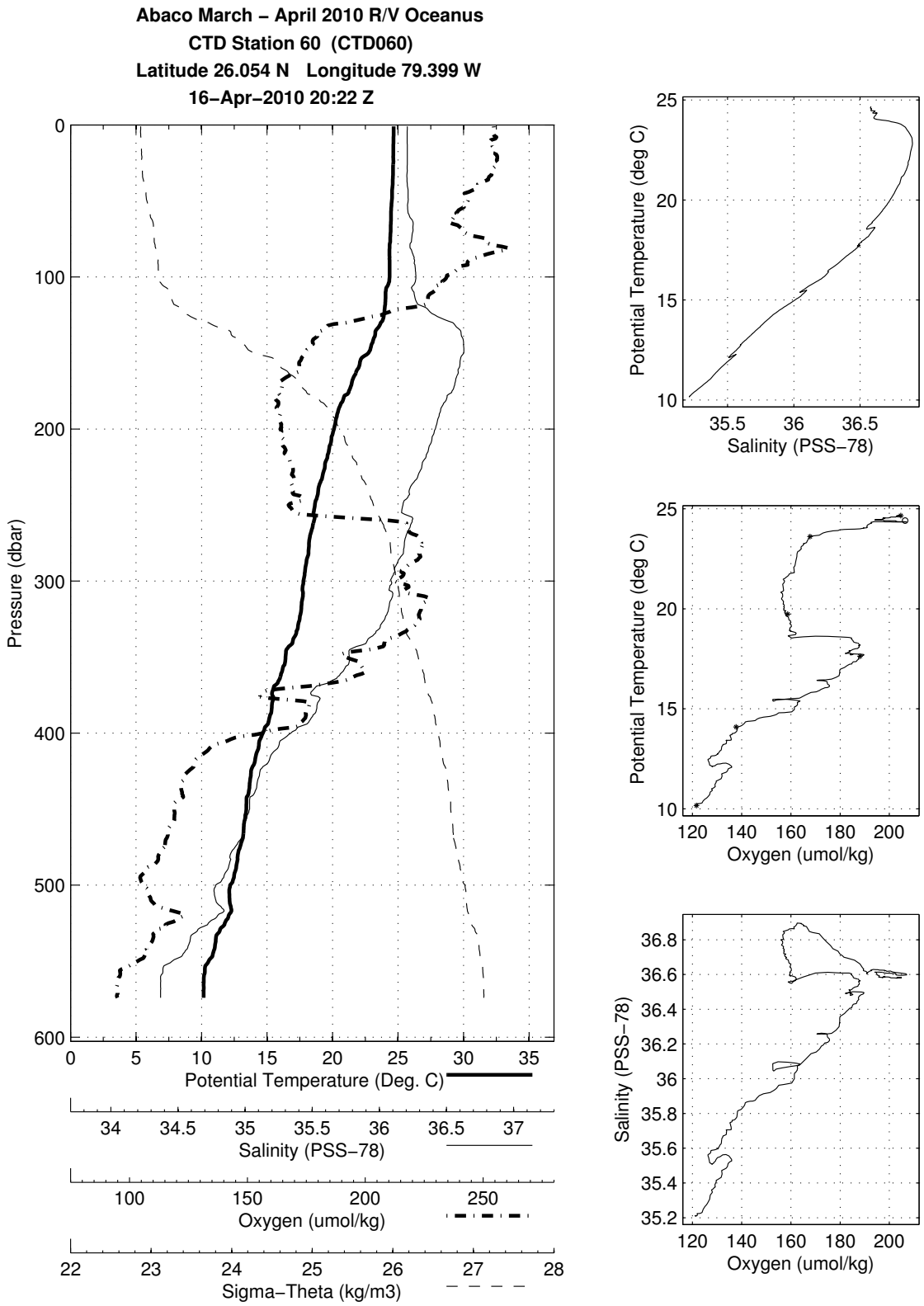
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
357	2	8.845	8.807	35.052	121.9
265	4	14.338	14.298	35.860	133.1
193	6	17.468	17.436	36.322	146.1
143	8	19.445	19.419	36.526	159.7
93	10	20.684	20.666	36.450	211.7
43	12	25.517	25.507	36.497	205.1
2	14	25.511	25.511	36.495	205.1


Abaco March – April 2010 R/V Oceanus
CTD Station 59 (CTD059)
Latitude 26.056 N Longitude 79.480 W
16–Apr–2010 19:06 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)

Abaco March - April 2010 R/V Oceanus
CTD Station 50 (CTD050)
Latitude 27.007N Longitude 79.869W
16-Apr-2010 01:32Z

Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	25.359	25.358	36.502	203.0	0.004	24.366
10	25.354	25.352	36.500	203.2	0.036	24.368
20	25.360	25.356	36.501	203.7	0.071	24.366
30	25.317	25.311	36.498	204.2	0.107	24.379
50	21.793	21.784	36.457	220.6	0.167	25.386
75	20.704	20.689	36.526	208.1	0.227	25.741
100	19.790	19.772	36.496	189.2	0.281	25.964
125	18.934	18.912	36.393	187.5	0.331	26.109
150	17.939	17.913	36.331	157.5	0.378	26.314
200	14.563	14.534	35.877	139.7	0.455	26.751

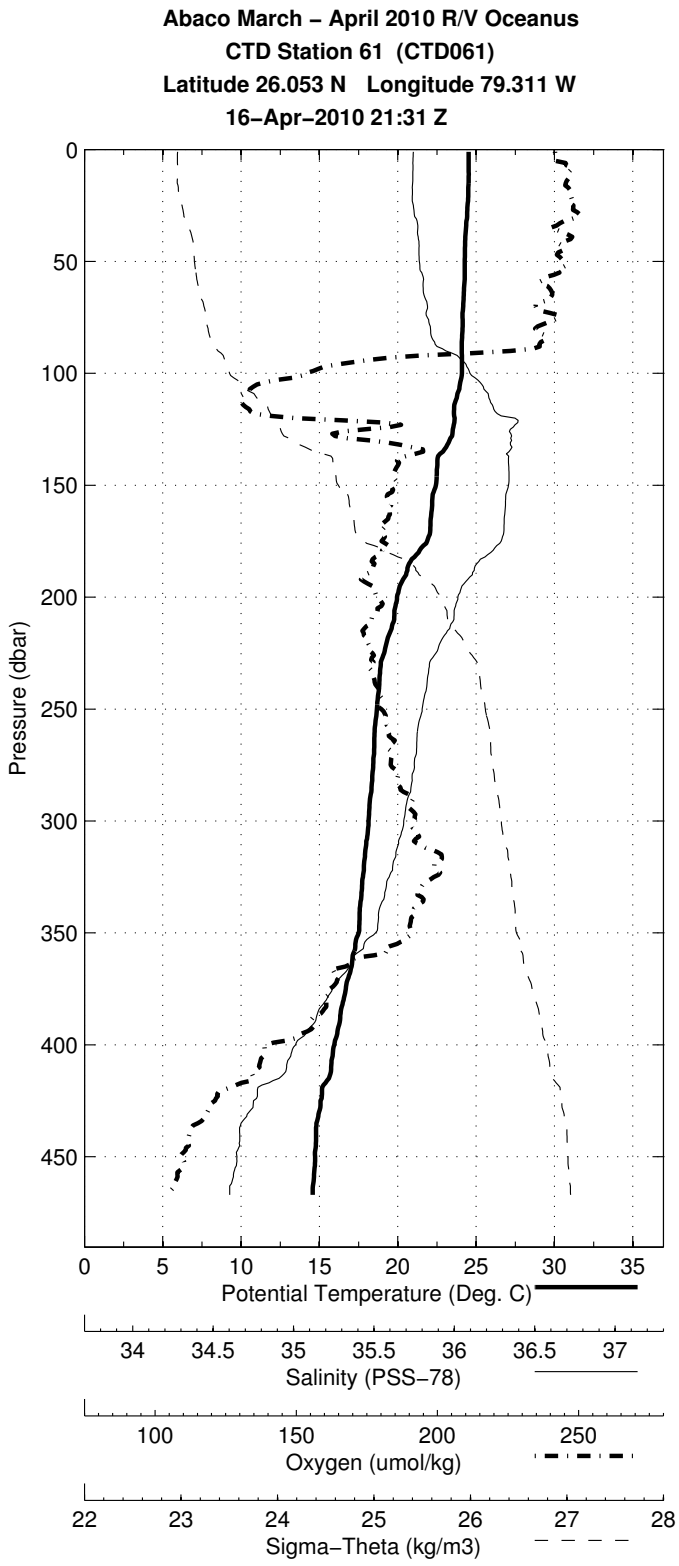
Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
238	2	12.586	12.554	35.584	129.7
194	4	15.205	15.175	35.978	141.1
152	6	17.941	17.914	36.332	153.7
103	8	19.617	19.598	36.477	184.5
53	10	21.591	21.580	36.468	221.5
3	12	25.337	25.339	−999.000	NaN

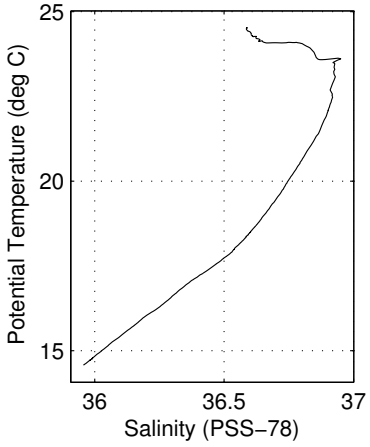

Abaco March – April 2010 R/V Oceanus
CTD Station 60 (CTD060)
Latitude 26.054 N Longitude 79.399 W
16–Apr–2010 20:22 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS–78)
Oxygen (umol/kg)
Sigma–Theta (kg/m3)
Potential Temperature (deg C)
Salinity (PSS–78)
Potential Temperature (deg C)
Oxygen (umol/kg)
Salinity (PSS–78)
Oxygen (umol/kg)

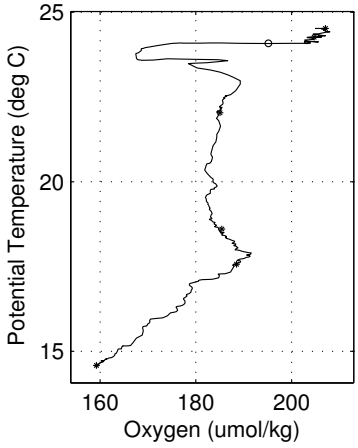
Abaco March - April 2010 R/V Oceanus
CTD Station 51 (CTD051)
Latitude 27.005N Longitude 79.935W
16-Apr-2010 02:30Z

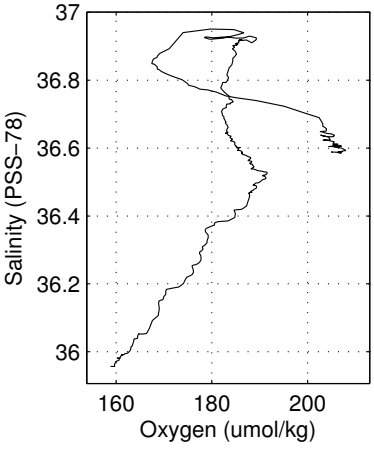
Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	25.100	25.100	36.512	204.2	0.003	24.454
10	25.097	25.094	36.511	204.3	0.035	24.455
20	25.103	25.099	36.511	204.5	0.069	24.453
30	24.967	24.960	36.505	205.3	0.104	24.491
50	21.230	21.220	36.558	210.6	0.157	25.620
75	20.059	20.046	36.498	198.8	0.214	25.892
100	18.359	18.341	36.325	182.7	0.263	26.202

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
122	2	16.519	16.499	36.124	153.7
83	4	19.543	19.527	36.487	184.0
43	6	21.636	21.627	36.577	211.6
2	8	25.091	25.090	36.513	207.1


Abaco March – April 2010 R/V Oceanus
CTD Station 61 (CTD061)
Latitude 26.053 N Longitude 79.311 W
16–Apr–2010 21:31 Z
Pressure (dbar)
Potential Temperature (Deg. C)
Salinity (PSS–78)
Oxygen (umol/kg)
Sigma–Theta (kg/m3)


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

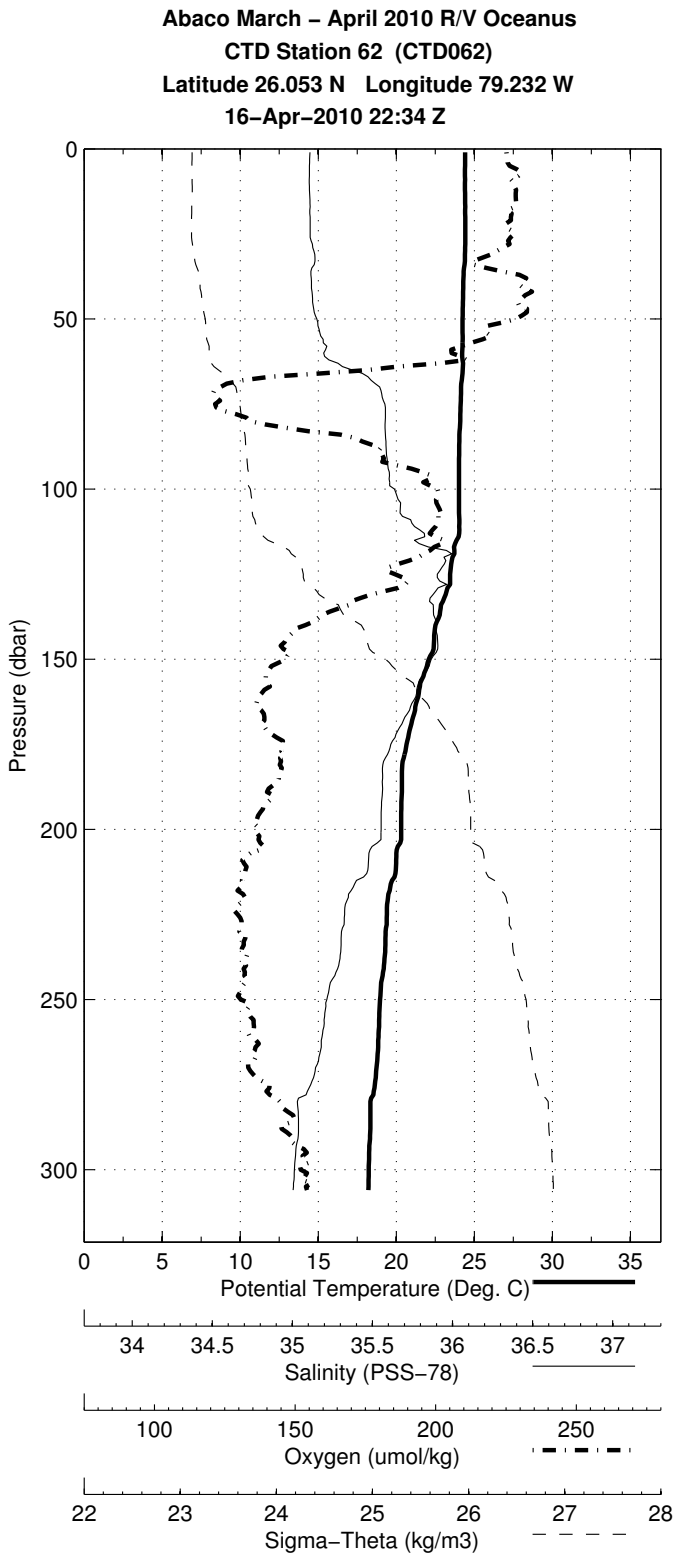

Potential Temperature (deg C)
Oxygen (umol/kg)

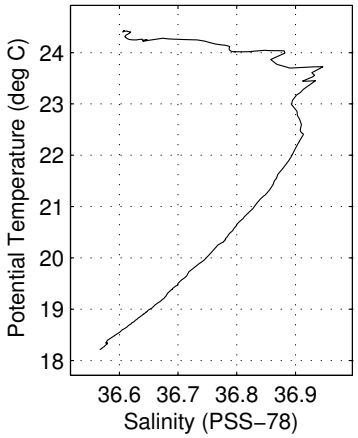

Salinity (PSS–78)
Oxygen (umol/kg)

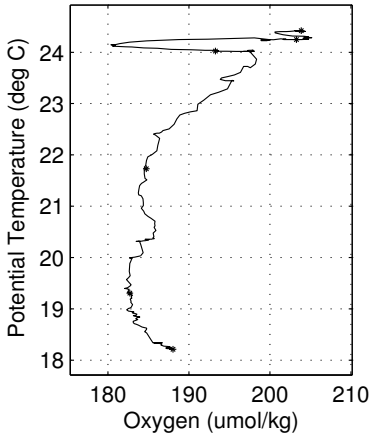
Abaco March - April 2010 R/V Oceanus
CTD Station 52 (CTD052)
Latitude 26.051N Longitude 80.067W
16-Apr-2010 09:24Z

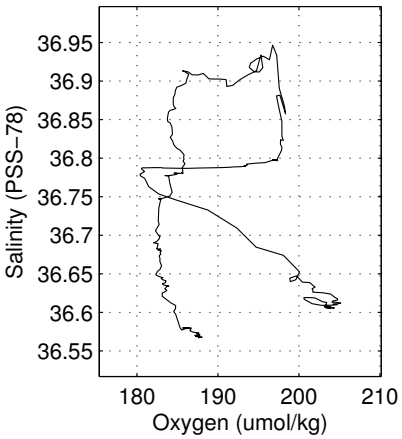
Pressure dbar	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}	DynHt m^2·s^{-2}	SigT kg·m^{-3}
1	24.449	24.449	36.491	206.5	0.003	24.636
10	24.452	24.450	36.490	206.6	0.033	24.635
20	24.459	24.455	36.490	206.8	0.066	24.633
30	24.460	24.454	36.490	206.5	0.099	24.634
50	24.466	24.455	36.490	207.2	0.165	24.634
75	21.816	21.801	36.467	204.4	0.244	25.389
100	18.025	18.008	36.274	173.6	0.296	26.246

Pressure dbar	Niskin	Temp90 °C	PoTemp90 °C	Salinity PSS-78	Oxygen μmol·kg^{-1}
103	2	17.699	17.681	36.251	169.1
63	4	24.334	24.320	36.489	208.7
2	6	24.448	24.447	36.492	209.2


Abaco March – April 2010 R/V Oceanus
CTD Station 62 (CTD062)
Latitude 26.053 N Longitude 79.232 W
16–Apr–2010 22:34 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)