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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 Florida Current data collected along 27°N during calendar year 2000 as part of the NOAA-funded Western Boundary Time Series project. This includes the daily Florida Current volume transport values estimated from one-minute voltage data on an out-of-service telephone cable, as well as dropsonde and expendable bathythermograph (XBT) data collected on small boat cruises. The data presented herein are in final processed and quality controlled form. The report also documents where the electronic files for these data can be obtained.

1 Introduction

The Florida Current is perhaps one of the most well observed oceanic flows in the world. This warm surface current flows northward through the Straits of Florida from the Gulf of Mexico to 27°N, where it exits the Straits and becomes the Gulf Stream. Along the way the Florida Current forms both the western boundary current of the subtropical gyre and the upper limb of the Meridional Overturning Circulation. Modern observation of the Florida Current at 27°N began in 1982, when the National Oceanic and Atmospheric Administration (NOAA) began funding a project to measure the volume transport and hydrographic structure of the flow between Florida and Grand Bahama Island. The project changed names several times over the next 20 years, and since the year 2000 the Florida Current observations have been a component of the Western Boundary Time Series (WBTS) project, with funding from the NOAA Climate Program Office - Climate Observations Division. The nominal locations where data are collected are shown in Figure 1 and Table 1.

The WBTS program began in mid-2000 as a resumption of previous studies that had stopped in late 1998; this report is the first in a series of annual reports detailing the data collected as part of the project. This data report details all of the WBTS observations collected in the Florida Current over the calendar year. These data come in two categories:

1. Continuous time series observations made via an unused submarine telephone cable.

2. Ship-based observations made several times per year on small chartered boats.

Data presented in this report are organized by collection platform - either cable, or small charter boat. Data are reported both graphically and via tables; a later section in the report provides web links to the electronic data files themselves. Further information about these data can be obtained either on the project web page (www.aoml.noaa.gov/phod/floridacurrent/) or from the contact personnel listed on that web page.

Station	Latitude	Longitude	Depth
0	27°00.00' N	79°55.80' W	139
1	27°00.00' N	79°52.00' W	261
2	27°00.00' N	79°47.00' W	389
3	27°00.00' N	79°41.00' W	540
4	27°00.00' N	79°37.00' W	661
5	27°00.00' N	79°30.00' W	783
6	27°00.00' N	79°23.00' W	708
7	27°00.00' N	79°17.00' W	624
8	27°00.00' N	79°12.00' W	485

Table 1: Nominal locations and depths (m) for the dropsonde/XBT data collected in the Straits of Florida.

1.1 Continuous observations

Basic electromagnetic theory indicates that when charged particles move through a magnetic field, an electric field is created perpendicular to the motion of the particles. The continuous measurements of the Florida Current volume transport made as part of the WBTS project take advantage of this basic physics, as the charged salt ions in seawater move northward in the Florida Current through the magnetic field of the Earth and create an east-west electric field. This electric field can be measured as a voltage on an out-of-use submarine telephone cable between Florida and Grand Bahama Island (see Figure 1). The technique used to estimate transport from voltage will be briefly presented in Section 2.

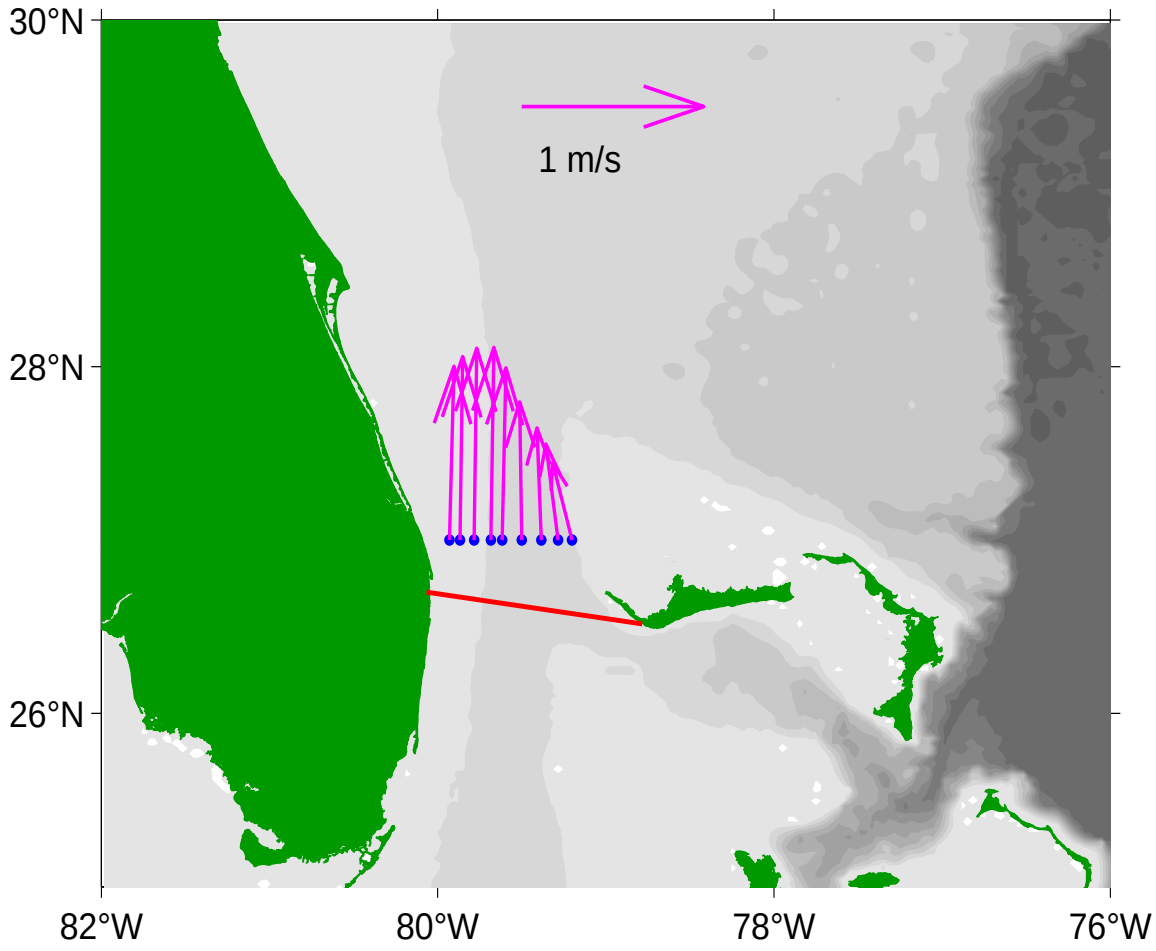

Figure 1: Map of the Straits of Florida study area. Blue dots indicate the locations of dropsonde/XBT stations. Red line shows the approximate location of the telephone cable used for the voltage measurements. Magenta vectors illustrate the time mean vertically-averaged horizontal velocities from all dropsonde data collected between 1994 and 2014 to indicate observation locations relative to the Florida Current position.

1.2 Shipboard measurements

Ship sections collected in the Straits of Florida along 27°N as part of the WBTS project are used to calibrate the cable observations, and they also collect additional data sets that provide information about water properties and the velocity structure. Data are collected at nine stations along 27°N, and the same nine stations have been in use since the mid-1980s (see Figure 1 and Table 1). The dropsonde/XBT sections are collected via small chartered boats. For more detail on how the data collected in these sections are used to calculate volume transport, please see Garcia and Meinen (2014).

2 Cable observations

As discussed in the Introduction, voltages induced on a submarine cable by the Florida Current have been shown to be proportional to the total current transport. These voltages are calibrated into volume transport using calibration coefficients originally derived in comparison to ship sections in the 1980s (e.g. Larsen and Sanford, 1985; Larsen, 1992), and the resulting calibrated volume transports are routinely verified by regular ship sections collected each year (see next section). Voltages are measured on the cable each minute by a voltmeter and computer; these voltages are then processed with a low-pass filter (2nd order Butterworth, passed both forward and backward to eliminate phase shifting) with a 3-day cut-off period to remove ionospheric noise from the record. The resulting volume transports are reported in units of Sverdrups (1 Sv = 10^6 m^3 s^{-1}). For further details on the cable observations and processing, please see Meinen et al., (2010).

Cable voltages have been monitored and daily total transport values obtained since 1982. A table listing the daily cable transport values is presented in Appendix A. The annual time series is presented graphically as Figure 2, with the estimated 'error bar' on each daily value indicated by the gray shading. Details on the estimation of the volume transport accuracy, i.e. the 'error bar', can be found in Garcia and Meinen (2014).

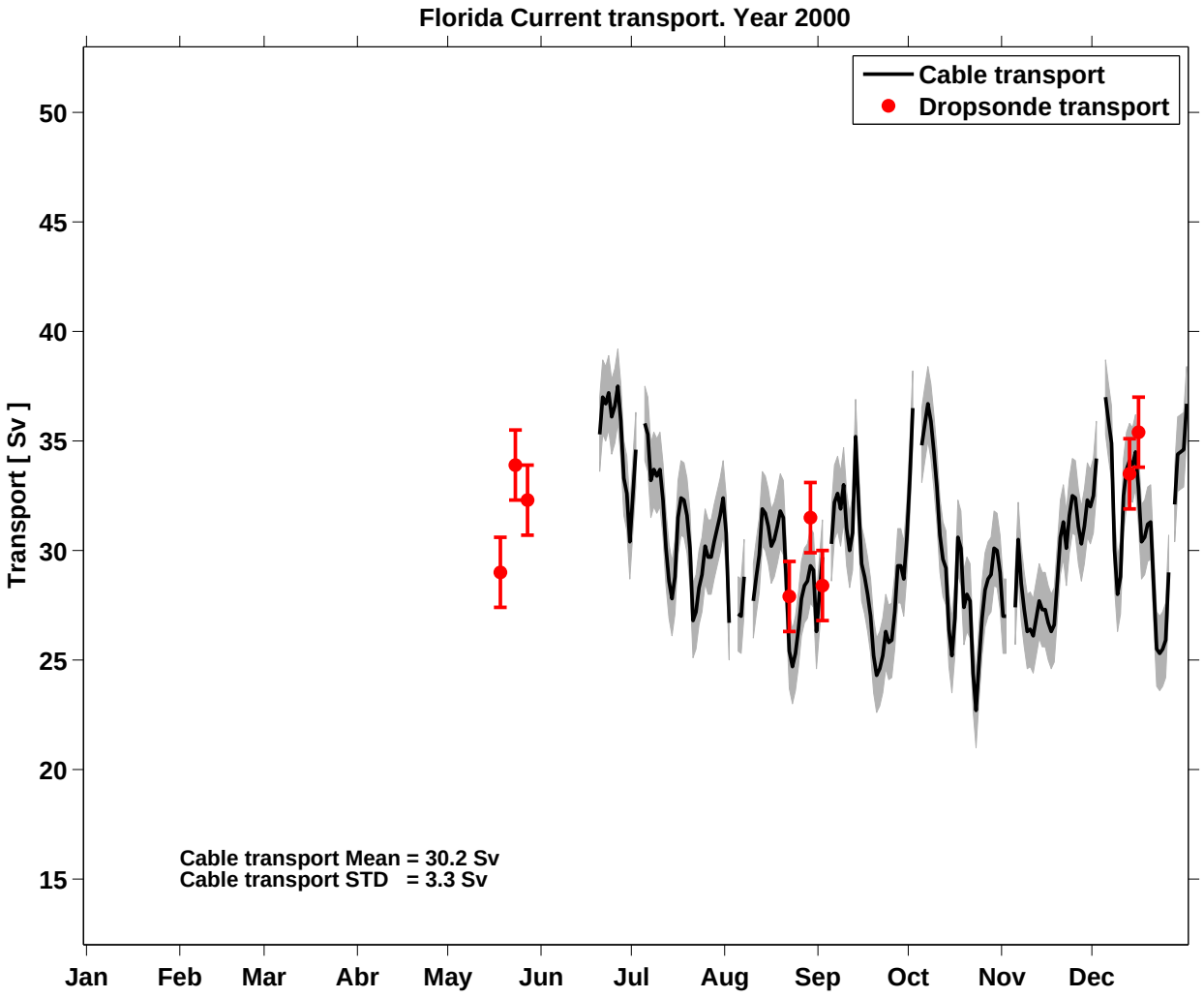

Figure 2: Observed Florida Current volume transports measured by cable voltage (black line), and dropsonde sections (red dots). For each measurement system the estimated error bar is also shown. The annual mean and standard deviation (STD) from the cable voltage estimates are shown in the figure at lower left.

3 Dropsonde - XBT cruises

This section presents data collected on small boat charter cruises performed during the calendar year in the Straits of Florida at 27°N. These cruises involve the collection of measurements of vertically-averaged horizontal velocity, using dropsonde floats, and temperature profiles, using expendable bathythermographs (XBTs).

A dropsonde is a free-falling float that is deployed from a boat. Once deployed, it sinks to the bottom, drops a weight, and then rises back to the surface under its own buoyancy. Knowing the initial and final position of the dropsonde on the ocean surface at the start and end of the cast, and the elapsed time to complete the cast, it is possible to calculate the vertically-averaged horizontal velocity as the total distance traveled divided by the time required for the cast. For more detail on how the data are collected and used to estimate the volume transport of the Florida Current, please see Garcia and Meinen (2014).

The dates of the dropsonde/XBT cruises during the year, and the resulting estimated transports values, are shown in Table 2. The transport values are also plotted in Figure 2, where the corresponding error bars, as estimated by Garcia and Meinen (2014), are also shown. The individual dropsonde velocity measurements are listed in table form in Appendix B.

The XBT probes are launched at each of the same nine stations to obtain temperature profiles through the full water column (because the maximum depth along 27°N is roughly 750 m). Plots of the XBT temperature sections are shown in Figure 3 . The temperature profile data, organized by cruise, are shown in tabular form in Appendix C. Methods for the XBT processing and quality control can be found in Daneshzadeh et al. (1994).

Cruise No.	Year	Month	Day	Hour mean	Transport	Transport detided
1	2000	5	17	14	30.5	29.0
2	2000	5	22	14	34.1	33.9
3	2000	5	26	15	33.0	32.3
4	2000	8	21	13	29.6	27.9
5	2000	8	28	13	31.3	31.5
6	2000	9	1	13	28.2	28.4
7	2000	12	12	15	30.5	33.5
8	2000	12	15	15	34.5	35.4

Table 2: Dropsonde/XBT cruise information: cruise number, cruise date, and transport values estimated with and without the tide signals. NaN indicates insuficient data to estimate transport.

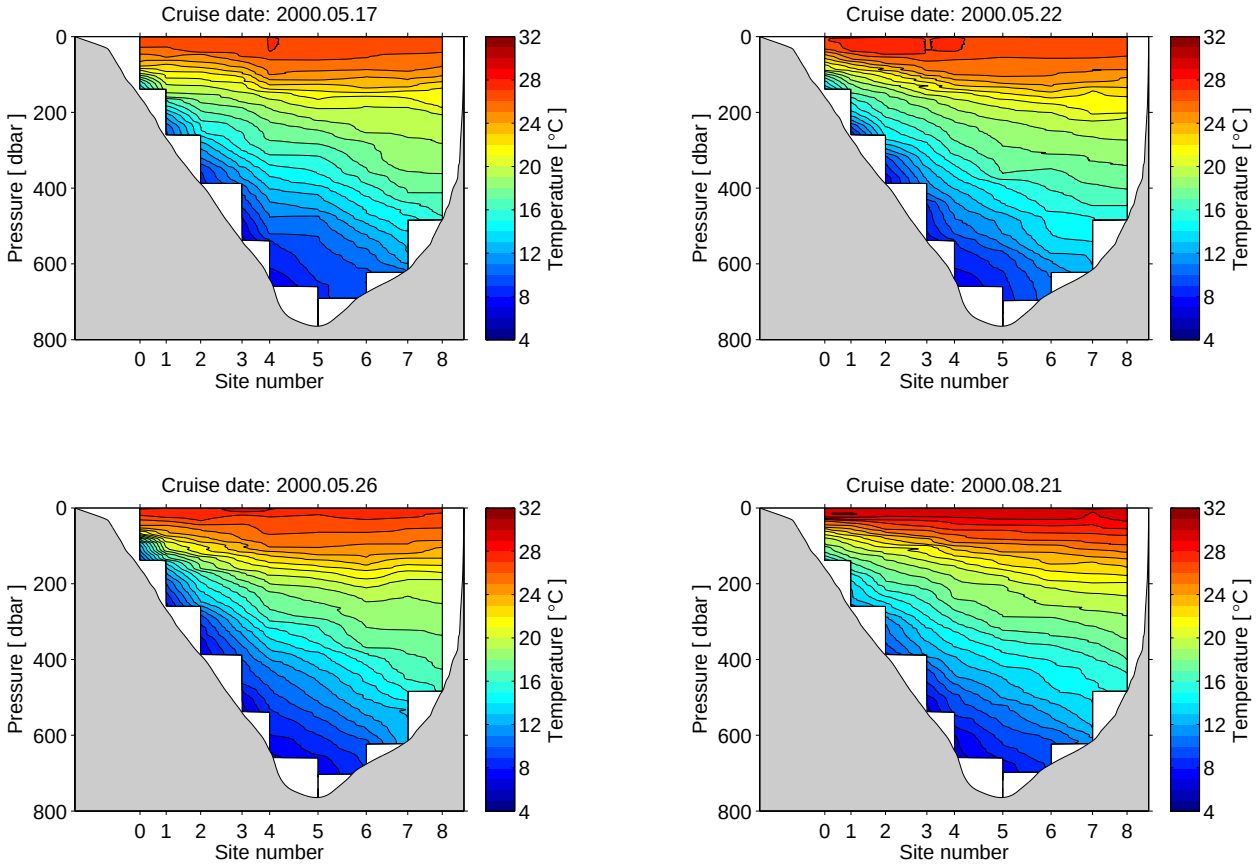

Figure 3: Temperature sections measured with XBT on the indicated dates. Date format is year, month, and day.

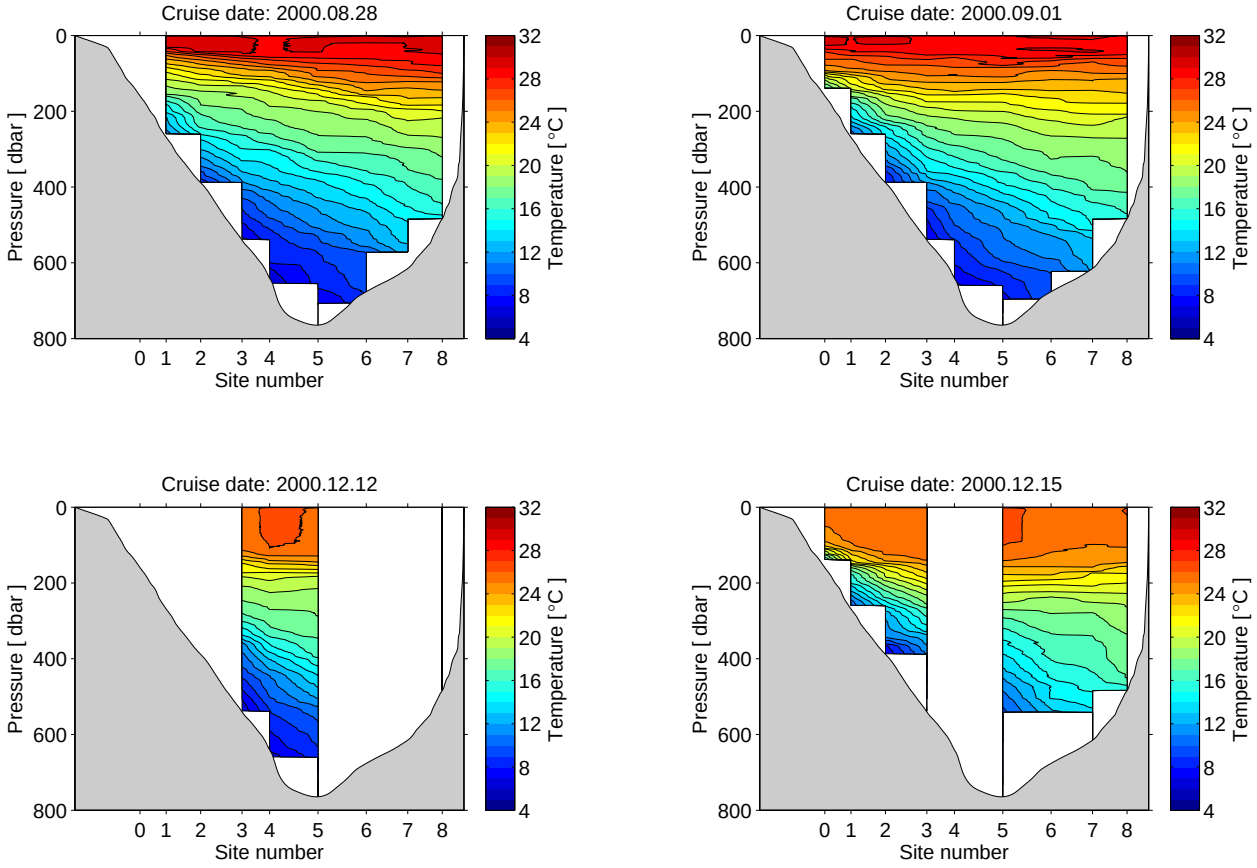

Figure 4: Same as Figure 3 for the data collected on the cruise date indicated.

4 Issues during the year

This section of the report is designed to list any issues or problems with the data collection during this calendar year which may affect data quality. This information is provided so that users of the data are aware of any limitations or issues with the data. In most years, data from all of these systems is collected successfully with few or no problems, so in most cases this section will be brief. The section is organized following the same order of data systems as in the body of the report.

4.1 Cable observations

The cable voltage recording system did not collect data and/or failed during 185 days during this year. Cable recording began on June 19, so no data is available prior to that date in this year. Furthermore, due to recording system failures, there are no cable transport estimates for the following dates: July 2-3; August 2, 3, 7, and 8; September 2-3; October 2-3; November 2-3; and December 2, 3, and 26. Data are available for all other days throughout the year.

Note that during 2000-2005, a fairly primitive voltage recording system was used for the cable. Data quality from this system was good, but not as good as the subsequent systems used from January 1, 2006 and beyond.

4.2 Dropsonde - XBT cruises

No problems arose during the year involving the dropsonde system.

Several problems arose during the year involving the XBT system. During the cruises of August 28, and December 15, the XBT system failed at one station each, and no data were collected at those stations. Also, during the cruise of December 12, the XBT system failed at five stations, and no data were collected at those stations.

5 Data availability

The electronic files for the data presented in this report can be obtained from the following sources:

Raw 1-minute voltage data can be obtained from the NOAA National Centers for Environmental Information (NCEI - formerly the NOAA National Oceanographic Data Center). See this web address (http://accession.nodc.noaa.gov/0088016).

The processed daily cable transports, and the dropsonde section transports, can be obtained from the project web page (www.aoml.noaa.gov/phod/floridacurrent). See the "Data Access" subpage.

Other raw data are available upon request - please email/call the contact people listed on the www.aoml.noaa.gov/phod/floridacurrent web page.

6 Acknowledgements

The authors wish to sincerely thank the many people who have helped to collect the data presented in this report. Special thanks go to the engineers who have maintained the cable recording system (Doug Anderson, David Bitterman, and Ulises Rivero). Thanks also to Batelco for allowing the recording system to be housed in their facility on Grand Bahama Island. Great appreciation also to the scientists, engineers and technicians who participated in the small charter boat dropsonde/XBT cruises (Doug Anderson, Paul Dammann, Craig Engler, Jose Ochoa, and Robert Roddy). And many thanks to the fine captains and crews of the vessels used to collect this data. Finally, the authors also want to express their thanks to the technical support staff at AOML who have aided in the processing of these data including Yeun-Ho Daneshzadeh. The collection and processing of the data in this report was supported by the NOAA Climate Program Office - Climate Observations Division and the NOAA Atlantic Oceanographic and Meteorological Laboratory.

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Appendix A:

Daily Florida Current transport data

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	NaN	NaN	NaN	NaN	NaN	NaN	34.6	26.7	29.7	36.5	27.0	34.2
2	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
3	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
4	NaN	NaN	NaN	NaN	NaN	NaN	35.8	27.1	30.3	34.8	27.4	37.0
5	NaN	NaN	NaN	NaN	NaN	NaN	35.3	27.0	32.2	35.8	30.5	35.9
6	NaN	NaN	NaN	NaN	NaN	NaN	33.2	28.8	32.6	36.7	28.5	34.9
7	NaN	NaN	NaN	NaN	NaN	NaN	33.7	NaN	31.9	35.9	27.3	30.0
8	NaN	NaN	NaN	NaN	NaN	NaN	33.4	NaN	33.0	34.5	26.3	28.0
9	NaN	NaN	NaN	NaN	NaN	NaN	33.7	27.7	31.0	32.9	26.4	28.8
10	NaN	NaN	NaN	NaN	NaN	NaN	32.3	28.8	30.0	30.7	26.1	32.5
11	NaN	NaN	NaN	NaN	NaN	NaN	30.1	29.8	30.8	29.6	26.9	33.7
12	NaN	NaN	NaN	NaN	NaN	NaN	28.6	31.9	35.2	29.2	27.7	34.1
13	NaN	NaN	NaN	NaN	NaN	NaN	27.8	31.7	32.1	26.4	27.3	33.9
14	NaN	NaN	NaN	NaN	NaN	NaN	28.8	31.1	29.4	25.2	27.3	34.5
15	NaN	NaN	NaN	NaN	NaN	NaN	31.5	30.2	28.8	26.9	26.7	32.8
16	NaN	NaN	NaN	NaN	NaN	NaN	32.4	30.5	28.0	30.6	26.3	30.4
17	NaN	NaN	NaN	NaN	NaN	NaN	32.3	31.1	27.0	30.1	26.6	30.6
18	NaN	NaN	NaN	NaN	NaN	NaN	31.6	31.8	25.2	27.4	28.6	31.2
19	NaN	NaN	NaN	NaN	NaN	35.3	30.1	31.5	24.3	28.0	30.6	31.3
20	NaN	NaN	NaN	NaN	NaN	37.0	26.8	28.6	24.6	27.7	31.3	28.4
21	NaN	NaN	NaN	NaN	NaN	36.7	27.2	25.4	25.2	24.4	30.1	25.5
22	NaN	NaN	NaN	NaN	NaN	37.2	28.3	24.7	26.3	22.7	31.6	25.3
23	NaN	NaN	NaN	NaN	NaN	36.1	28.9	25.3	25.8	24.9	32.5	25.5
24	NaN	NaN	NaN	NaN	NaN	36.6	30.2	26.4	25.9	26.9	32.4	25.9
25	NaN	NaN	NaN	NaN	NaN	37.5	29.7	27.8	27.2	28.2	31.1	29.0
26	NaN	NaN	NaN	NaN	NaN	35.9	29.7	28.4	29.3	28.7	30.3	NaN
27	NaN	NaN	NaN	NaN	NaN	33.3	30.4	28.6	29.3	28.9	31.1	32.1
28	NaN	NaN	NaN	NaN	NaN	32.6	31.0	29.3	28.7	30.1	32.3	34.4
29	NaN	NaN	NaN	NaN	NaN	30.4	31.6	29.1	30.5	30.0	32.0	34.5
30	NaN	–	NaN	NaN	NaN	32.5	32.4	26.3	33.2	29.0	32.5	34.6
31	NaN	–	NaN	–	NaN	–	30.8	28.0	–	27.0	–	36.7

Table 3: Florida Current daily transport estimated using voltage measurements on a telephone cable. Units are Sverdrups (1 Sv = 10^6 m^3 s^{-1}). NaN values indicate no data is available on that day; dashes indicate that day does not exist in that month/year. Table oriented such that each row is the day of the month and each column is the month.

Appendix B:

Dropsonde vertical mean velocities

Sta	Deployed			Surfaced			Mean Velocities	
	Time (GMT)	Lon	Lat	Time (GMT)	Lon	Lat	U cm/s	V cm/s
Cruise date: 2000.05.17								
0	11:30:10	-79.9294	27.0015	11:36:37	-79.9290	27.0037	9.40	64.49
1	11:58:39	-79.8664	27.0016	12: 9:51	-79.8659	27.0064	7.38	78.74
2	12:30:14	-79.7830	27.0013	12:46:39	-79.7822	27.0092	8.36	87.95
3	13:13:23	-79.6832	27.0035	13:35:57	-79.6822	27.0160	8.27	101.72
4	13:56: 3	-79.6163	27.0011	14:22:45	-79.6152	27.0147	7.41	93.08
5	14:49:11	-79.4994	27.0011	15:20:57	-79.4992	27.0126	1.00	66.34
6	15:46:33	-79.3832	27.0010	16:14:39	-79.3832	27.0104	0.58	61.22
7	16:39:32	-79.2835	27.0004	17: 6:57	-79.2845	27.0080	-5.92	51.72
8	17:28:10	-79.1997	27.0003	17:48:33	-79.2010	27.0044	-10.18	37.92
Cruise date: 2000.05.22								
0	11:36:32	-79.9282	27.0078	11:42:43	-79.9285	27.0128	-6.68	146.22
1	11:59:30	-79.8668	27.0012	12:10:39	-79.8669	27.0088	-1.71	124.34
2	12:30: 3	-79.7833	27.0007	12:47: 3	-79.7833	27.0111	-0.19	111.18
3	13: 9:32	-79.6821	27.0011	13:31:51	-79.6826	27.0147	-4.86	111.20
4	13:51:31	-79.6166	27.0005	14:16:57	-79.6168	27.0142	-1.72	98.90
5	14:41:12	-79.4997	27.0006	15:12:15	-79.5002	27.0137	-3.26	77.61
6	15:35:30	-79.3827	27.0009	16: 3:51	-79.3838	27.0099	-6.80	58.20
7	16:22:42	-79.2834	27.0001	16:46:57	-79.2847	27.0062	-9.73	45.74
8	17: 4: 1	-79.1999	26.9995	17:24:27	-79.2008	27.0022	-8.47	24.83
Cruise date: 2000.05.26								
0	11:42: 1	-79.9287	27.0017	11:48:19	-79.9287	27.0053	0.21	105.48
1	12:13:23	-79.8677	27.0015	12:24: 9	-79.8676	27.0078	2.35	105.84
2	12:47:13	-79.7834	27.0013	13: 3:33	-79.7835	27.0107	-0.81	105.12
3	13:24:41	-79.6835	27.0011	13:46:39	-79.6834	27.0135	0.84	103.54
4	14: 5:12	-79.6140	27.0009	14:32:33	-79.6137	27.0149	1.50	94.33
5	14:54:33	-79.5004	27.0008	15:24:51	-79.5006	27.0127	-0.80	72.65
6	15:49:23	-79.3835	27.0008	16:17:51	-79.3838	27.0104	-2.14	62.06
7	16:39:23	-79.2831	26.9998	17: 4: 3	-79.2835	27.0068	-3.13	53.10
8	17:22:43	-79.1984	26.9986	17:43:33	-79.1996	27.0026	-10.28	35.91

Table 4: Tables of dropsonde floats measurements made during the cruises on the indicated dates. Station numbers in left column are as shown in Table 1. Tables include information on where the dropsonde floats were deployed, where they surfaced, and the resulting estimated zonal (U) and meridional (V) vertically averaged velocity. NaN indicates no observation at that station.

Sta	Deployed			Surfaced			Mean Velocities	
	Time (GMT)	Lon	Lat	Time (GMT)	Lon	Lat	U cm/s	V cm/s
Cruise date: 2000.08.21								
0	11: 0: 8	-79.9293	27.0017	11: 6:34	-79.9287	27.0051	13.70	96.99
1	11:19:48	-79.8664	27.0010	11:30:33	-79.8656	27.0065	12.08	92.53
2	11:44:57	-79.7833	27.0005	12: 0:51	-79.7822	27.0089	10.64	96.41
3	12:19:17	-79.6833	27.0003	12:40:57	-79.6825	27.0110	6.61	90.59
4	12:54:46	-79.6165	27.0006	13:20:27	-79.6154	27.0137	7.25	93.68
5	13:41:17	-79.4999	27.0002	14:11:27	-79.4994	27.0120	3.08	71.26
6	14:31:56	-79.3826	27.0010	14:59:51	-79.3826	27.0087	0.01	50.71
7	15:18:32	-79.2834	27.0000	15:43:39	-79.2841	27.0046	-4.61	33.55
8	15:59:47	-79.1997	26.9998	16:20: 9	-79.2009	27.0036	-9.62	34.87
Cruise date: 2000.08.28								
0	11: 2:32	-79.9300	27.0008	11: 8:50	-79.9300	27.0031	-2.36	65.43
1	11:21:10	-79.8666	27.0002	11:32:27	-79.8669	27.0046	-3.67	71.92
2	11:47:49	-79.7828	27.0000	12: 3:39	-79.7831	27.0076	-3.24	88.24
3	12:20: 6	-79.6831	27.0004	12:43:27	-79.6832	27.0132	-0.71	100.88
4	12:55:31	-79.6166	27.0004	13:22:45	-79.6162	27.0138	2.06	90.31
5	13:41: 6	-79.5000	27.0000	14:12:15	-79.5001	27.0123	-1.07	71.86
6	14:35:44	-79.3830	27.0003	15: 4:33	-79.3836	27.0098	-3.15	60.31
7	15:21:32	-79.2832	27.0002	15:47:51	-79.2840	27.0083	-5.41	56.47
8	16: 2:58	-79.1997	27.0004	16:22:39	-79.2013	27.0057	-13.81	49.62
Cruise date: 2000.09.01								
0	10:46:11	-79.9294	27.0009	10:52:39	-79.9291	27.0045	7.09	103.47
1	11: 4:27	-79.8664	27.0003	11:15:27	-79.8659	27.0060	7.33	93.24
2	11:29:32	-79.7832	27.0007	11:46:21	-79.7824	27.0096	7.36	96.86
3	12: 3:10	-79.6828	27.0007	12:25:15	-79.6820	27.0126	6.55	99.62
4	12:38:19	-79.6163	27.0000	13: 4:33	-79.6154	27.0124	5.76	86.71
5	13:23:47	-79.4999	27.0007	13:55:15	-79.4990	27.0108	3.68	60.14
6	14:13:46	-79.3832	27.0005	14:41: 9	-79.3820	27.0072	7.14	45.19
7	14:56:21	-79.2833	27.0004	15:22:21	-79.2837	27.0054	-2.40	35.12
8	15:38:51	-79.1997	27.0000	15:58: 3	-79.2003	27.0030	-4.68	29.02

Table 5: Same as Table 4 for dropsonde measurements during the cruises on the indicated dates.

Sta	Deployed			Surfaced			Mean Velocities	
	Time (GMT)	Lon	Lat	Time (GMT)	Lon	Lat	U cm/s	V cm/s
Cruise date: 2000.12.12								
0	12:14:34	-79.9303	27.0015	12:20:51	-79.9305	27.0038	-4.58	69.27
1	12:37: 4	-79.8672	27.0020	12:47:34	-79.8677	27.0068	-7.50	84.53
2	13: 4:49	-79.7827	27.0010	13:20:33	-79.7825	27.0107	1.90	113.67
3	13:40: 2	-79.6831	27.0016	14: 1: 3	-79.6822	27.0150	6.98	116.85
4	14:16:33	-79.6161	27.0014	14:42: 9	-79.6147	27.0163	9.29	106.84
5	15: 7: 6	-79.5000	27.0017	15:36:27	-79.4992	27.0131	4.41	71.49
6	15:57: 3	-79.3832	27.0008	16:23:27	-79.3833	27.0078	-0.69	48.44
7	16:41: 3	-79.2832	27.0008	17: 4:57	-79.2837	27.0046	-3.09	29.31
8	17:20:50	-79.1998	27.0007	17:39:33	-79.2001	27.0024	-2.46	17.72
Cruise date: 2000.12.15								
0	12: 7:39	-79.9300	27.0018	12:13:48	-79.9299	27.0069	2.83	152.78
1	12:30:16	-79.8661	27.0013	12:40:57	-79.8658	27.0095	4.48	141.26
2	13: 3:12	-79.7829	27.0009	13:19:39	-79.7829	27.0120	0.81	123.49
3	13:46: 9	-79.6832	27.0010	14: 5:57	-79.6830	27.0139	2.10	119.54
4	14:26: 1	-79.6165	27.0008	14:50:57	-79.6167	27.0141	-1.06	98.69
5	15:17:40	-79.4997	27.0004	15:46:45	-79.5004	27.0108	-3.47	65.33
6	16:13:33	-79.3830	27.0004	16:38:57	-79.3838	27.0076	-4.70	52.00
7	17: 1:47	-79.2834	27.0003	17:25:21	-79.2851	27.0065	-11.77	48.92
8	17:43: 7	-79.1999	27.0002	18: 1:21	-79.2011	27.0037	-11.32	36.48

Table 6: Same as Table 4 for dropsonde measurements during the cruises on the indicated dates.

Appendix C:

XBT temperature profiles

Cruise date: 2000.05.17									
Depth	Sta. 0	Sta. 1	Sta. 2	Sta. 3	Sta. 4	Sta. 5	Sta. 6	Sta. 7	Sta. 8
0	26.42	26.55	26.22	25.70	26.89	26.33	26.22	25.99	26.27
10	26.73	26.88	26.57	26.14	27.07	26.67	26.48	26.35	26.22
20	26.70	26.42	26.50	26.12	27.08	26.67	26.47	26.27	26.19
30	25.86	25.93	26.43	26.12	27.05	26.59	26.45	26.25	26.14
40	25.36	25.45	26.19	26.12	26.98	26.50	26.23	26.22	26.03
50	24.53	25.16	24.74	26.11	26.48	26.11	26.10	25.76	25.91
60	24.15	24.32	24.28	25.31	26.06	26.03	25.96	25.62	25.60
70	23.48	23.46	23.62	24.73	25.75	25.78	25.74	25.56	25.18
80	22.75	22.73	23.10	24.06	25.50	25.42	25.37	25.50	24.96
90	20.86	22.21	22.36	23.41	25.15	25.07	24.74	25.16	24.29
100	19.45	21.16	21.47	22.57	25.03	24.70	24.35	24.60	24.12
110	17.30	20.94	21.05	21.85	24.22	24.33	23.83	24.05	23.78
120	15.64	20.38	20.44	21.23	23.49	23.48	23.32	23.68	22.89
130	14.74	19.90	19.95	20.66	22.87	22.74	23.14	23.13	22.33
140	–	19.62	19.32	20.41	21.92	22.22	22.88	22.49	21.75
150	–	18.82	19.12	19.71	20.51	21.64	21.61	21.61	21.65
160	–	17.90	18.59	19.40	20.21	21.23	20.37	21.16	21.47
170	–	15.90	18.15	19.10	19.67	20.92	20.20	20.84	21.33
180	–	15.33	17.67	18.48	19.27	20.65	20.07	20.52	21.17
190	–	14.20	17.29	17.93	19.00	20.02	19.98	19.89	20.89
200	–	13.26	16.90	17.52	18.75	19.78	19.71	19.55	20.25
210	–	12.18	16.39	17.23	18.49	19.37	19.60	19.50	19.90
220	–	11.66	16.02	16.96	18.09	19.09	19.40	19.44	19.63
230	–	10.99	15.13	16.51	17.84	18.58	19.29	19.21	19.34
240	–	10.26	14.99	16.29	17.56	18.23	19.23	19.17	19.29
250	–	9.93	14.92	16.06	17.41	17.86	19.13	19.11	19.21
260	–	9.85	14.47	15.91	17.30	17.59	18.85	19.03	19.16
270	–	–	13.49	15.85	17.17	17.35	18.57	18.96	19.04
280	–	–	12.84	15.71	16.88	17.12	17.99	18.86	19.02
290	–	–	12.28	15.41	16.64	16.77	17.81	18.78	18.85
300	–	–	11.78	15.07	16.39	16.47	17.75	18.71	18.83
350	–	–	9.15	12.62	14.66	15.12	16.98	18.29	18.11
400	–	–	–	10.52	13.10	13.59	15.58	17.12	17.39
450	–	–	–	9.12	11.62	12.24	14.15	15.51	16.38
500	–	–	–	7.40	10.42	10.53	12.78	14.51	–
550	–	–	–	–	8.83	9.82	11.33	13.13	–
600	–	–	–	–	8.27	9.41	10.23	11.93	–
650	–	–	–	–	7.07	8.94	9.94	–	–
700	–	–	–	–	–	8.65	NaN	–	–
750	–	–	–	–	–	8.40	–	–	–

Table 7: Expendable bathythermograph (XBT) temperature profile data collected during the cruise on the date indicated at the top. Left column indicates the estimated depth in meters from the fall rate. Temperature units are degrees Celsius. NaN indicates missing values due to instrument failure, and dashes indicates depths below bottom for each station.

Cruise date: 2000.05.22									
Depth	Sta. 0	Sta. 1	Sta. 2	Sta. 3	Sta. 4	Sta. 5	Sta. 6	Sta. 7	Sta. 8
0	26.37	25.59	26.56	26.49	26.89	26.66	27.25	27.10	27.10
10	26.96	27.23	27.24	26.99	27.07	26.73	26.74	26.97	26.97
20	26.67	27.21	27.24	26.98	27.08	26.70	26.70	26.94	26.90
30	26.50	27.21	27.23	26.99	27.05	26.70	26.70	26.93	26.91
40	25.05	26.90	27.24	26.99	26.98	26.62	26.67	26.49	26.61
50	23.73	25.68	26.70	26.41	26.48	26.20	26.57	26.18	26.02
60	22.65	24.94	25.54	26.20	26.06	25.89	25.89	25.87	25.62
70	21.74	23.22	25.03	25.58	25.75	25.70	25.55	25.55	25.23
80	20.67	22.20	23.78	25.29	25.50	25.47	25.36	25.06	25.05
90	19.81	21.07	22.77	24.99	25.15	25.35	25.09	25.00	24.96
100	17.64	20.11	21.49	24.21	25.03	25.23	25.05	24.64	24.71
110	15.83	19.19	20.96	22.90	24.22	24.72	24.75	24.40	23.90
120	14.61	18.58	20.40	22.08	23.49	24.17	24.32	23.93	23.75
130	13.89	17.80	19.48	20.92	22.87	23.52	24.03	23.13	23.35
140	–	17.57	18.63	20.97	21.92	22.51	23.34	22.26	22.65
150	–	16.87	17.97	20.22	20.51	21.96	22.66	21.89	22.32
160	–	16.05	17.66	19.34	20.21	21.28	22.13	21.67	21.89
170	–	15.53	17.33	18.65	19.67	20.73	21.41	21.65	21.70
180	–	14.71	17.08	18.47	19.27	20.39	20.86	21.52	21.49
190	–	14.46	16.84	18.00	19.00	19.94	20.52	21.27	21.46
200	–	13.62	16.45	17.82	18.75	19.62	20.04	21.08	21.12
210	–	12.93	16.11	17.41	18.49	19.49	19.69	20.73	20.49
220	–	12.05	15.69	17.05	18.09	19.06	19.48	20.31	19.77
230	–	10.84	15.34	16.76	17.84	18.75	19.41	19.57	19.68
240	–	9.82	14.86	16.46	17.56	18.52	19.20	19.32	19.41
250	–	9.05	14.56	16.20	17.41	18.50	18.91	19.22	19.37
260	–	8.35	14.28	15.83	17.30	18.31	18.74	19.16	19.24
270	–	–	13.99	15.41	17.17	18.17	18.51	18.91	19.16
280	–	–	13.41	14.97	16.88	18.08	18.51	18.73	18.76
290	–	–	12.42	14.75	16.64	17.98	18.25	18.46	18.64
300	–	–	11.64	14.55	16.39	17.80	18.17	18.35	18.48
350	–	–	8.50	12.77	14.66	17.18	16.97	17.70	17.78
400	–	–	–	11.52	13.10	14.91	16.12	16.77	17.09
450	–	–	–	8.79	11.62	13.73	15.24	15.71	15.76
500	–	–	–	8.30	10.42	12.20	14.21	14.39	–
550	–	–	–	–	8.83	11.00	13.68	13.99	–
600	–	–	–	–	8.27	9.28	11.90	13.03	–
650	–	–	–	–	7.07	8.73	10.75	–	–
700	–	–	–	–	–	8.48	NaN	–	–
750	–	–	–	–	–	7.58	–	–	–

Table 8: Same as Table 7 for the cruise on the indicated date.

Cruise date: 2000.05.26									
Depth	Sta. 0	Sta. 1	Sta. 2	Sta. 3	Sta. 4	Sta. 5	Sta. 6	Sta. 7	Sta. 8
0	26.02	26.69	27.80	27.99	28.13	27.28	27.91	28.05	27.84
10	27.11	27.64	27.76	28.00	27.97	27.04	27.50	27.36	27.20
20	26.98	27.30	27.34	26.92	27.14	26.94	27.41	27.29	26.69
30	26.31	26.63	27.10	26.45	26.67	26.69	27.03	26.80	26.42
40	25.36	25.39	26.50	26.07	26.53	26.55	26.79	26.61	26.37
50	24.60	24.64	25.52	25.73	26.38	26.29	26.67	26.27	26.09
60	22.42	23.98	24.97	25.45	26.30	26.08	26.37	25.84	25.78
70	20.61	23.53	24.33	25.21	26.01	25.70	25.79	25.57	25.81
80	16.92	21.83	23.71	25.07	25.64	25.55	25.40	25.21	25.46
90	14.38	20.87	22.96	24.52	25.44	25.38	25.33	25.05	24.67
100	12.65	20.29	21.90	23.71	25.14	25.18	24.84	24.94	24.37
110	11.93	19.75	21.74	23.51	24.51	24.70	24.69	24.69	23.65
120	11.27	18.08	21.04	22.41	23.64	24.14	24.09	24.03	23.43
130	10.30	16.83	19.40	21.71	22.79	23.41	24.00	23.25	23.14
140	–	14.90	18.88	21.15	22.19	22.73	23.50	22.31	22.52
150	–	13.72	18.18	20.68	21.52	22.15	23.05	21.94	22.27
160	–	12.76	17.97	20.26	20.87	21.47	22.29	21.59	21.65
170	–	12.02	16.52	19.10	20.37	20.76	21.84	20.67	21.02
180	–	11.48	15.82	18.52	19.76	20.37	21.42	20.47	20.48
190	–	10.64	15.34	18.08	19.21	19.88	20.92	19.97	19.95
200	–	9.99	14.78	17.44	19.01	19.51	20.40	19.61	19.57
210	–	9.67	14.57	16.85	18.37	19.01	20.03	19.39	19.41
220	–	9.26	14.03	16.58	18.08	18.69	19.47	19.24	19.25
230	–	8.67	13.56	16.13	17.80	18.37	19.30	19.02	19.24
240	–	8.23	13.23	15.68	17.69	18.17	19.09	18.95	19.12
250	–	7.96	12.74	15.39	17.52	17.99	18.95	18.89	19.03
260	–	7.81	11.81	15.00	17.24	17.66	18.71	18.83	18.93
270	–	–	11.04	14.78	16.93	17.66	18.50	18.68	18.76
280	–	–	10.28	14.34	16.68	17.55	18.47	18.51	18.63
290	–	–	9.53	13.79	16.22	17.09	18.32	18.45	18.45
300	–	–	9.18	13.34	15.87	16.58	18.17	18.39	18.16
350	–	–	7.59	11.48	13.85	15.27	17.46	17.43	17.92
400	–	–	–	10.09	11.98	13.50	15.39	16.71	17.23
450	–	–	–	9.19	10.46	12.11	14.18	16.13	16.58
500	–	–	–	7.32	9.56	11.22	13.13	14.55	–
550	–	–	–	–	8.62	10.12	11.87	13.02	–
600	–	–	–	–	7.94	8.96	10.52	12.89	–
650	–	–	–	–	6.91	8.06	9.30	–	–
700	–	–	–	–	–	7.17	9.03	–	–
750	–	–	–	–	–	6.44	–	–	–

Table 9: Same as Table 7 for the cruise on the indicated date.

Cruise date: 2000.08.21									
Depth	Sta. 0	Sta. 1	Sta. 2	Sta. 3	Sta. 4	Sta. 5	Sta. 6	Sta. 7	Sta. 8
0	29.35	29.25	28.84	28.99	28.88	29.26	29.22	28.28	29.60
10	29.98	29.85	29.36	29.20	29.35	29.40	29.59	29.06	29.47
20	29.69	29.45	29.19	29.17	29.28	29.35	29.50	28.89	29.44
30	27.04	28.26	28.19	28.27	28.53	28.95	29.07	28.84	29.14
40	25.30	26.03	27.01	27.59	28.06	28.39	28.39	28.27	28.89
50	24.08	24.65	26.48	26.86	27.62	27.59	27.87	27.87	28.40
60	22.39	23.61	25.21	25.97	26.83	26.93	27.30	27.81	27.78
70	21.09	22.54	24.31	25.59	26.06	26.62	26.79	26.81	27.33
80	19.79	21.41	23.02	24.14	25.80	26.25	26.42	26.19	26.64
90	19.13	20.50	22.35	23.61	25.14	25.58	25.69	26.08	26.41
100	18.40	19.94	21.54	21.80	23.98	24.74	24.70	25.64	25.84
110	17.38	19.49	20.67	21.21	23.05	24.25	24.61	24.99	25.32
120	16.73	18.69	20.06	21.03	22.38	23.36	23.86	24.51	24.59
130	15.55	18.07	19.08	20.67	21.66	22.75	23.43	23.89	24.26
140	–	17.30	18.73	20.01	20.87	22.26	23.22	23.29	23.61
150	–	16.72	18.45	19.46	20.31	21.96	22.64	22.85	23.14
160	–	16.23	17.98	19.02	19.81	21.18	22.31	22.43	22.77
170	–	15.54	17.61	18.77	19.33	20.59	21.89	22.15	22.31
180	–	14.41	17.29	18.27	19.09	19.98	21.47	21.51	21.90
190	–	13.97	17.02	17.94	18.94	19.83	21.13	21.19	21.34
200	–	13.63	16.75	17.46	18.62	19.45	20.55	20.91	20.73
210	–	13.22	16.09	17.19	18.32	18.90	20.14	20.52	20.29
220	–	12.89	15.84	16.78	18.22	18.85	19.83	20.18	20.14
230	–	12.88	15.25	16.44	18.20	18.61	19.49	19.85	20.06
240	–	12.72	14.63	16.33	17.98	18.58	19.35	19.58	19.87
250	–	12.25	14.01	16.02	17.56	18.50	19.23	19.37	19.78
260	–	11.68	13.69	15.72	17.24	18.39	18.93	19.15	19.58
270	–	–	13.26	15.45	16.98	18.28	18.67	19.07	19.26
280	–	–	12.72	15.21	16.70	18.09	18.26	18.66	19.05
290	–	–	11.79	14.87	16.28	17.96	17.94	18.56	18.99
300	–	–	11.41	14.60	16.03	17.58	17.80	18.22	18.77
350	–	–	10.17	13.12	14.50	15.90	16.60	17.05	17.84
400	–	–	–	11.28	12.88	14.43	15.06	15.90	17.02
450	–	–	–	9.10	11.68	13.00	14.19	15.15	15.78
500	–	–	–	7.60	9.70	12.09	13.44	14.14	–
550	–	–	–	–	8.87	10.44	12.01	13.55	–
600	–	–	–	–	6.98	9.44	10.21	12.15	–
650	–	–	–	–	6.59	8.43	9.66	–	–
700	–	–	–	–	–	7.35	NaN	–	–
750	–	–	–	–	–	6.34	–	–	–

Table 10: Same as Table 7 for the cruise on the indicated date.

Cruise date: 2000.08.28									
Depth	Sta. 0	Sta. 1	Sta. 2	Sta. 3	Sta. 4	Sta. 5	Sta. 6	Sta. 7	Sta. 8
0	NaN	28.50	28.61	28.44	28.13	28.03	28.72	28.15	28.82
10	NaN	29.39	29.49	29.02	28.98	29.04	29.07	29.00	29.18
20	NaN	29.40	29.47	29.02	28.97	29.05	28.94	29.01	29.18
30	NaN	29.28	29.49	29.01	28.98	29.05	28.69	29.04	29.18
40	NaN	27.21	29.47	29.02	28.98	29.05	28.57	29.01	29.17
50	NaN	25.48	27.10	28.78	28.97	28.44	28.46	28.29	29.01
60	NaN	24.30	25.66	27.00	27.68	27.99	28.05	28.21	28.57
70	NaN	23.24	24.42	25.79	26.55	27.26	27.90	27.95	28.32
80	NaN	22.39	23.60	24.77	25.61	26.63	26.96	27.64	27.95
90	NaN	21.62	22.64	23.87	24.46	26.06	26.21	27.12	27.56
100	NaN	20.80	22.18	23.41	23.36	25.31	26.01	26.54	27.01
110	NaN	20.31	21.48	22.44	22.91	24.85	25.82	25.86	26.22
120	NaN	19.60	20.64	21.18	21.72	24.14	25.45	25.14	25.47
130	NaN	19.12	20.07	20.36	21.22	23.12	24.50	24.45	24.77
140	–	18.81	19.44	19.48	20.47	22.21	24.20	23.85	24.36
150	–	18.51	18.83	19.09	19.93	21.35	23.73	23.48	23.84
160	–	17.09	18.63	19.08	19.64	20.91	22.15	23.14	23.20
170	–	16.10	18.15	18.54	19.35	20.18	21.57	22.93	22.87
180	–	15.19	18.03	18.24	19.12	19.60	21.01	22.24	22.43
190	–	14.66	17.74	18.20	18.89	19.14	20.50	21.52	21.49
200	–	14.40	17.40	17.94	18.62	19.03	19.59	20.79	20.93
210	–	13.27	16.96	17.81	18.36	18.72	19.35	20.52	20.37
220	–	12.88	16.79	17.55	18.11	18.60	19.14	20.18	19.94
230	–	12.70	16.70	17.33	17.87	18.47	18.69	19.84	19.74
240	–	12.36	16.32	17.07	17.80	18.30	18.51	19.49	19.55
250	–	11.90	15.70	16.52	17.49	18.19	18.34	19.33	19.39
260	–	11.47	15.00	16.34	16.95	18.08	18.18	19.08	19.17
270	–	–	14.47	15.70	16.76	17.91	17.95	18.63	18.99
280	–	–	13.75	15.60	16.36	17.60	17.82	18.35	18.79
290	–	–	13.44	15.23	15.80	17.47	17.65	18.17	18.53
300	–	–	13.18	14.94	15.19	17.34	17.33	17.71	18.28
350	–	–	10.57	13.28	13.80	15.48	16.18	17.02	17.58
400	–	–	–	11.43	12.40	13.67	14.69	15.96	16.70
450	–	–	–	9.17	10.81	12.20	13.59	15.10	15.85
500	–	–	–	7.74	9.45	11.38	12.46	13.81	–
550	–	–	–	–	8.38	9.62	11.40	12.98	–
600	–	–	–	–	8.00	8.76	9.84	NaN	–
650	–	–	–	–	6.33	8.31	9.42	–	–
700	–	–	–	–	–	7.10	8.81	–	–
750	–	–	–	–	–	6.61	–	–	–

Table 11: Same as Table 7 for the cruise on the indicated date.

Cruise date: 2000.09.01									
Depth	Sta. 0	Sta. 1	Sta. 2	Sta. 3	Sta. 4	Sta. 5	Sta. 6	Sta. 7	Sta. 8
0	27.61	27.60	28.18	28.24	27.95	28.56	29.14	28.90	28.73
10	29.09	28.99	29.12	28.93	28.90	28.99	28.99	29.00	28.77
20	29.10	28.98	29.12	28.92	28.96	28.98	28.94	28.97	28.75
30	28.54	28.92	28.91	28.85	28.90	28.98	28.90	28.97	28.74
40	27.35	27.98	28.19	28.61	28.45	28.96	28.99	29.10	28.73
50	26.59	27.32	27.31	28.10	28.04	28.22	28.37	28.51	28.01
60	26.07	26.19	26.88	27.22	26.86	28.04	27.93	27.03	27.04
70	25.64	25.81	26.36	26.41	26.52	27.24	26.71	25.98	26.80
80	24.78	25.39	25.89	25.93	26.14	26.87	26.06	25.73	26.13
90	24.05	24.72	25.40	25.71	25.65	25.79	25.63	25.42	25.62
100	22.05	23.50	24.67	25.21	25.26	25.50	24.23	24.98	25.04
110	20.58	21.90	24.09	24.88	24.70	24.91	24.08	24.34	24.34
120	18.79	21.42	23.66	24.26	24.13	24.10	23.90	24.00	23.64
130	17.62	20.80	22.65	23.72	23.81	23.67	23.69	23.69	23.62
140	–	20.12	22.24	23.08	23.28	23.18	23.28	23.11	23.58
150	–	18.54	21.01	22.44	22.73	22.28	22.70	22.82	23.06
160	–	18.03	19.98	21.70	21.86	21.75	22.29	22.46	22.55
170	–	16.25	19.70	21.14	21.27	21.26	21.89	22.32	22.34
180	–	15.65	19.03	20.61	20.62	20.88	21.84	21.96	21.97
190	–	14.91	18.58	19.96	20.29	20.41	21.54	21.73	21.82
200	–	14.29	18.25	19.49	19.91	20.03	20.77	21.45	21.58
210	–	14.03	17.95	19.03	19.29	19.68	20.55	20.89	20.77
220	–	13.69	17.29	18.78	18.97	19.40	20.24	20.40	19.87
230	–	12.71	16.41	18.31	18.68	19.04	19.90	20.22	19.67
240	–	11.81	15.10	17.90	18.52	18.66	19.75	19.87	19.50
250	–	10.97	14.52	17.55	18.28	18.42	19.48	19.52	19.41
260	–	10.61	14.40	17.34	18.02	18.14	19.24	19.22	19.20
270	–	–	13.79	16.89	17.75	18.05	18.83	19.00	19.04
280	–	–	13.13	16.65	17.47	17.89	18.57	18.86	18.91
290	–	–	12.74	16.27	17.03	17.82	18.42	18.57	18.86
300	–	–	12.06	15.83	16.65	17.68	18.32	18.36	18.76
350	–	–	9.25	14.20	14.92	16.45	17.48	17.43	18.11
400	–	–	–	11.30	12.49	14.62	16.04	17.10	17.33
450	–	–	–	9.20	10.69	12.63	14.73	15.72	16.23
500	–	–	–	7.72	10.01	11.41	12.91	15.04	–
550	–	–	–	–	8.76	10.87	11.48	12.76	–
600	–	–	–	–	8.05	9.87	10.58	12.45	–
650	–	–	–	–	7.06	8.38	9.87	–	–
700	–	–	–	–	–	7.54	NaN	–	–
750	–	–	–	–	–	6.57	–	–	–

Table 12: Same as Table 7 for the cruise on the indicated date.

Cruise date: 2000.12.12									
Depth	Sta. 0	Sta. 1	Sta. 2	Sta. 3	Sta. 4	Sta. 5	Sta. 6	Sta. 7	Sta. 8
0	NaN	NaN	NaN	25.67	26.00	26.02	NaN	NaN	26.94
10	NaN	NaN	NaN	25.81	26.12	25.96	NaN	NaN	26.05
20	NaN	NaN	NaN	25.81	26.11	25.95	NaN	NaN	25.98
30	NaN	NaN	NaN	25.81	26.10	25.95	NaN	NaN	25.98
40	NaN	NaN	NaN	25.81	26.10	25.95	NaN	NaN	25.98
50	NaN	NaN	NaN	25.81	26.09	25.95	NaN	NaN	25.98
60	NaN	NaN	NaN	25.83	26.10	25.96	NaN	NaN	25.97
70	NaN	NaN	NaN	25.81	26.08	25.95	NaN	NaN	25.82
80	NaN	NaN	NaN	25.81	26.06	25.95	NaN	NaN	25.62
90	NaN	NaN	NaN	25.58	26.06	25.94	NaN	NaN	25.55
100	NaN	NaN	NaN	25.52	26.02	25.95	NaN	NaN	25.38
110	NaN	NaN	NaN	25.24	25.99	25.95	NaN	NaN	25.21
120	NaN	NaN	NaN	24.59	25.64	25.74	NaN	NaN	25.22
130	NaN	NaN	NaN	23.81	24.85	24.91	NaN	NaN	24.70
140	–	NaN	NaN	22.86	24.07	24.34	NaN	NaN	24.42
150	–	NaN	NaN	21.84	22.90	23.17	NaN	NaN	23.28
160	–	NaN	NaN	21.48	22.20	22.29	NaN	NaN	22.89
170	–	NaN	NaN	21.23	21.39	21.60	NaN	NaN	22.54
180	–	NaN	NaN	20.34	20.66	20.39	NaN	NaN	22.08
190	–	NaN	NaN	19.70	20.14	19.33	NaN	NaN	21.69
200	–	NaN	NaN	19.50	19.83	19.29	NaN	NaN	21.34
210	–	NaN	NaN	18.84	19.40	19.14	NaN	NaN	20.97
220	–	NaN	NaN	18.49	19.16	18.88	NaN	NaN	20.13
230	–	NaN	NaN	18.40	18.92	18.76	NaN	NaN	19.73
240	–	NaN	NaN	18.14	18.66	18.64	NaN	NaN	19.38
250	–	NaN	NaN	17.90	18.40	18.48	NaN	NaN	19.34
260	–	NaN	NaN	17.53	18.20	18.25	NaN	NaN	19.05
270	–	–	NaN	17.24	18.00	18.11	NaN	NaN	18.88
280	–	–	NaN	17.00	17.72	18.03	NaN	NaN	18.77
290	–	–	NaN	16.71	17.52	17.95	NaN	NaN	18.66
300	–	–	NaN	16.20	17.21	17.94	NaN	NaN	18.64
350	–	–	NaN	12.83	15.58	16.87	NaN	NaN	18.21
400	–	–	–	10.45	13.17	15.66	NaN	NaN	17.48
450	–	–	–	9.08	10.95	13.88	NaN	NaN	16.11
500	–	–	–	7.33	10.04	12.18	NaN	NaN	–
550	–	–	–	–	8.82	10.24	NaN	NaN	–
600	–	–	–	–	7.88	9.30	NaN	NaN	–
650	–	–	–	–	6.78	8.73	NaN	–	–
700	–	–	–	–	–	7.99	NaN	–	–
750	–	–	–	–	–	6.98	–	–	–

Table 13: Same as Table 7 for the cruise on the indicated date.

Cruise date: 2000.12.15									
Depth	Sta. 0	Sta. 1	Sta. 2	Sta. 3	Sta. 4	Sta. 5	Sta. 6	Sta. 7	Sta. 8
0	24.23	24.32	24.53	24.33	NaN	25.73	25.21	25.35	25.41
10	25.33	25.67	25.61	25.79	NaN	26.24	25.73	25.58	26.06
20	25.33	25.67	25.62	25.79	NaN	26.21	25.71	25.57	26.00
30	25.26	25.66	25.63	25.78	NaN	26.20	25.70	25.57	25.98
40	25.14	25.72	25.64	25.79	NaN	26.20	25.70	25.55	25.85
50	25.03	25.71	25.66	25.80	NaN	26.20	25.70	25.54	25.82
60	24.70	25.69	25.65	25.82	NaN	26.20	25.70	25.47	25.71
70	24.59	25.53	25.70	25.83	NaN	26.20	25.71	25.45	25.47
80	24.48	25.31	25.72	25.76	NaN	26.20	25.70	25.40	25.34
90	24.14	25.13	25.71	25.73	NaN	26.20	25.69	25.36	25.28
100	23.42	24.94	25.66	25.72	NaN	26.01	25.43	24.90	25.13
110	21.49	24.42	25.58	25.73	NaN	25.92	25.05	24.95	24.98
120	19.51	23.33	25.16	25.54	NaN	25.84	24.99	24.85	24.61
130	17.04	22.52	24.60	25.34	NaN	25.80	24.70	24.59	24.28
140	–	21.99	24.13	25.00	NaN	25.12	24.37	24.56	24.33
150	–	20.48	22.73	24.18	NaN	24.36	24.20	24.11	23.77
160	–	17.92	21.27	23.86	NaN	23.78	23.78	23.95	22.47
170	–	16.69	20.60	23.15	NaN	23.19	23.34	22.93	22.19
180	–	15.69	20.13	22.63	NaN	22.94	22.97	21.86	21.94
190	–	15.39	19.35	21.83	NaN	22.29	22.25	21.57	21.65
200	–	15.01	18.48	21.15	NaN	21.58	21.24	21.35	20.99
210	–	13.74	17.84	20.43	NaN	20.96	20.70	20.85	20.21
220	–	13.24	17.10	19.80	NaN	20.22	20.18	20.28	20.21
230	–	12.07	16.56	19.16	NaN	19.96	19.42	19.72	19.90
240	–	11.41	15.78	18.64	NaN	19.44	18.74	19.38	19.49
250	–	10.61	14.88	18.27	NaN	19.15	18.47	19.11	19.20
260	–	10.34	14.13	17.65	NaN	18.57	18.41	18.61	19.02
270	–	–	13.22	16.75	NaN	18.00	18.12	18.28	18.91
280	–	–	12.56	16.47	NaN	17.64	18.01	17.95	18.84
290	–	–	12.18	15.83	NaN	17.13	17.89	17.85	18.60
300	–	–	11.95	15.57	NaN	16.65	17.78	17.71	18.50
350	–	–	10.26	12.28	NaN	15.07	16.67	16.93	17.73
400	–	–	–	10.76	NaN	13.44	16.07	16.63	17.50
450	–	–	–	9.27	NaN	12.12	15.09	15.74	16.98
500	–	–	–	8.12	NaN	10.60	14.08	14.81	–
550	–	–	–	–	NaN	9.49	NaN	13.44	–
600	–	–	–	–	NaN	9.07	NaN	12.58	–
650	–	–	–	–	NaN	8.69	NaN	–	–
700	–	–	–	–	–	8.30	NaN	–	–
750	–	–	–	–	–	7.86	–	–	–

Table 14: Same as Table 7 for the cruise on the indicated date.


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