NOAA Data Report, OAR AOML - 70

Oceanographic data collected in the Straits of Florida at 27°N during the year 2003, including the estimated Florida Current transport

Authors:
Rigoberto F. Garcia
Christopher S. Meinen
Ryan H. Smith

Date:
March 31, 2017

Atlantic Oceanographic and Meteorological Laboratory
Miami, Florida

noaa

National Oceanic and Atmospheric Administration / **Office of Oceanic and Atmospheric Research**

NOAA Data Report OAR AOML - 70

Oceanographic data collected in the Straits of Florida at 27°N during the year 2003, including the estimated Florida Current transport

Rigoberto F. Garcia
University of Miami / Cooperative Institute for Marine and Atmospheric Studies
NOAA/ Atlantic Oceanographic and Meteorological Laboratory
Miami, Florida

Christopher S. Meinen
NOAA/ Atlantic Oceanographic and Meteorological Laboratory
Miami, Florida

Ryan H. Smith
NOAA/ Atlantic Oceanographic and Meteorological Laboratory
Miami, Florida

March 31, 2017

U.S. Department of Commerce
Wilbur Ross
Secretary

National Oceanic and Atmospheric Administration
Benjamin Friedman (Acting)
Under Secretary/Administrator

Office of Oceanic and Atmospheric Research
Craig McLean
Assistant Administrator

Disclaimer

NOAA does not approve, recommend, or endorse any proprietary product or material mentioned in this document. No reference shall be made to NOAA or to this document in any advertising or sales promotion, which would indicate or imply that NOAA approves, recommends, or endorses any proprietary product or proprietary material herein or which has as its purpose any intent to cause directly or indirectly the advertised product to be used or purchased because of this document.

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

Contents

Table of Contents **iv**

List of Figures **v**

List of Tables **viii**

Abstract **ix**

1 Introduction **1**

1.1 Continuous observations 2

1.2 Shipboard measurements 3

2 Cable observations **3**

3 Dropsonde - XBT cruises **5**

4 CTD - LADCP - SADCP cruises **7**

5 Issues during the year **11**

5.1 Cable observations 11

5.2 Dropsonde - XBT cruises 11

5.3 CTD - LADCP - SADCP cruises 11

6 Data availability **13**

7 Acknowledgements **14**

8 References **15**

List of Figures

1 Map of the Straits of Florida study area. Blue dots indicate the locations of dropsonde, XBT and CTD/LADCP 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. 2

2 Observed Florida Current volume transports measured by cable voltage (black line), dropsonde sections (red dots) and LADCP sections (blue triangles). 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. 4

3 Temperature sections measured with XBT on the indicated dates. Date format is year, month, and day. 6

4 Sections of temperature, salinity, dissolved oxygen (all from CTD), velocity profile (LADCP) and vector velocity map at 50m (SADCP) collected by research vessel. Cruise ID noted above the temperature panel; cruise date are shown in Table 3. . . . 8

5 Same as Figure 4 for the data collected on the cruise ID indicated above the temperature panel. 9

6 Same as Figure 4 for the data collected on the cruise ID indicated above the temperature panel. 10

List of Tables

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

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. 5

3 CTD/LADCP/SADCP cruise information: cruise identification, cruise date, and transport values estimated using LADCP data, with and without the tide signals. Values of NaN indicate transport can not be estimated. 7

4 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. 17

5 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. 19

6 Same as Table 5 for dropsonde measurements during the cruises on the indicated dates. 20

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. 22

8 Same as Table 7 for the cruise on the indicated date. 23

9 Same as Table 7 for the cruise on the indicated date. 24

10 Same as Table 7 for the cruise on the indicated date. 25

11 Same as Table 7 for the cruise on the indicated date. 26

12 Tables of vertically averaged velocity determined from lowered acoustic Doppler current profiler (LADCP) data collected during the indicated dates (see Table 3). Station numbers in left column are as shown in Table 1. Tables include information on where the LADCP cast was started ("Deployed"), where it ended ("Surfaced"), and the resulting estimated zonal (U) and meridional (V) vertically average velocity. . . 28

13 Profiles of temperature, salinity, dissolved oxygen, zonal (U) and meridional (V) velocity observed during the cruise ID and station indicated with the combined CTD and LADCP. NaN indicates missing values. 30

14 Same as Table 13 for the cruise ID and the station number indicated. 31

15 Same as Table 13 for the cruise ID and the station number indicated. 32

16 Same as Table 13 for the cruise ID and the station number indicated. 33

17 Same as Table 13 for the cruise ID and the station number indicated. 34

18 Same as Table 13 for the cruise ID and the station number indicated. 35

19 Same as Table 13 for the cruise ID and the station number indicated. 36

20 Same as Table 13 for the cruise ID and the station number indicated. 37

21 Same as Table 13 for the cruise ID and the station number indicated. 38

22 Same as Table 13 for the cruise ID and the station number indicated. 39

23 Same as Table 13 for the cruise ID and the station number indicated. 40

24 Same as Table 13 for the cruise ID and the station number indicated. 41

25 Same as Table 13 for the cruise ID and the station number indicated. 42

26 Same as Table 13 for the cruise ID and the station number indicated. 43

27 Same as Table 13 for the cruise ID and the station number indicated. 44

28 Same as Table 13 for the cruise ID and the station number indicated. 45

29 Same as Table 13 for the cruise ID and the station number indicated. 46

30 Same as Table 13 for the cruise ID and the station number indicated. 47

31 Same as Table 13 for the cruise ID and the station number indicated. 48

32 Same as Table 13 for the cruise ID and the station number indicated. 49

33 Same as Table 13 for the cruise ID and the station number indicated. 50

34 Same as Table 13 for the cruise ID and the station number indicated. 51

35 Same as Table 13 for the cruise ID and the station number indicated. 52

36 Same as Table 13 for the cruise ID and the station number indicated. 53

37 Same as Table 13 for the cruise ID and the station number indicated. 54

38 Same as Table 13 for the cruise ID and the station number indicated. 55

39 Same as Table 13 for the cruise ID and the station number indicated. 56

Abstract

This report summarizes the Florida Current data collected along 27°N during calendar year 2003 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 observations collected on cruises on R/V Walton Smith (i.e. full-water-column conductivity-temperature-depth, CTD, and shipboard and lowered acoustic Doppler current profiler, SADCP and LADCP, profiles). The report also includes 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.

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 either research vessels or small chartered boats.

Data presented in this report are organized by collection platform - either cable, research vessel, 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 and CTD/LADCP 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.

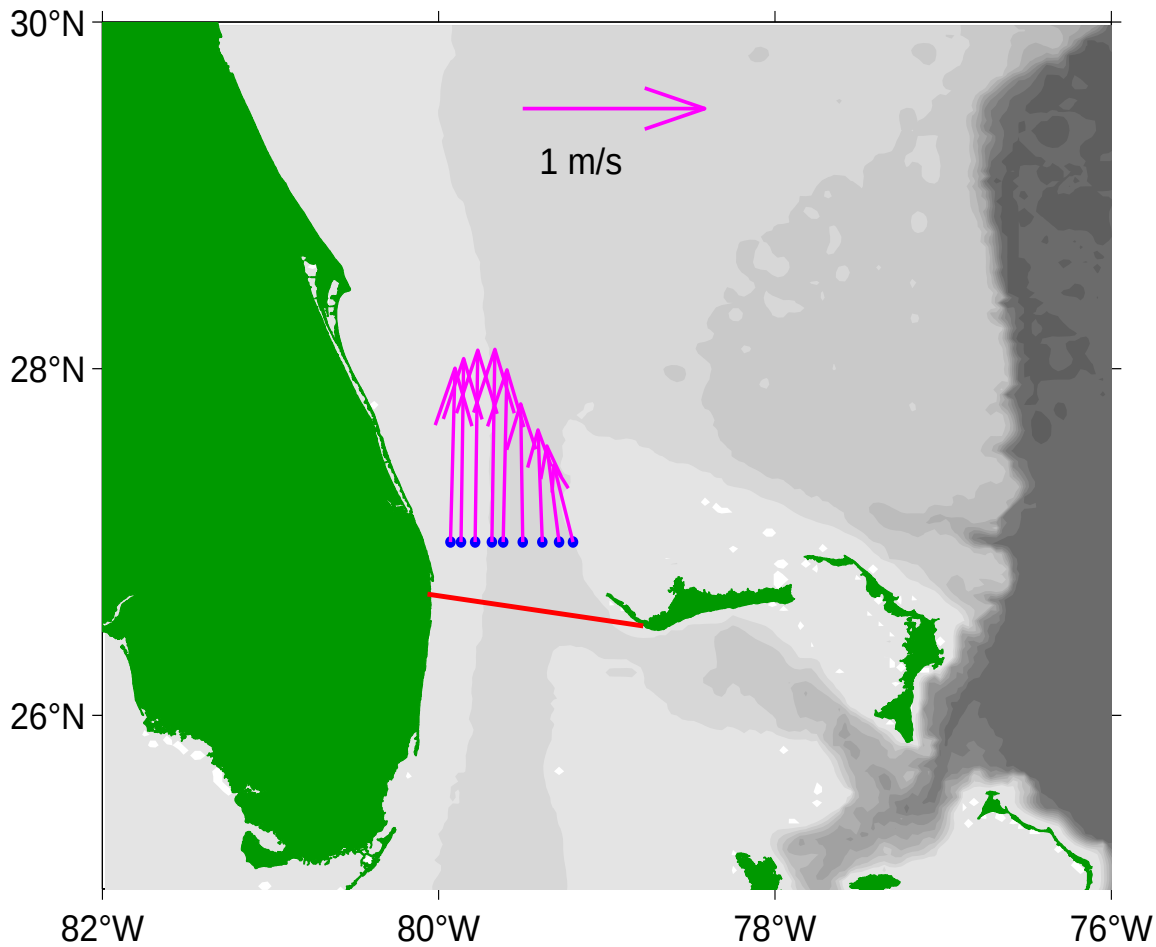

Figure 1: Map of the Straits of Florida study area. Blue dots indicate the locations of dropsonde, XBT and CTD/LADCP stations. Red line shows the approximate location of the telephone cable used for the voltage measurements. Magenta vectors illustrate the time mean vertically-averaged horizontal velocities 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). Two different types of ship sections are collected as part of the WBTS project: CTD/LADCP sections are collected via the R/V Walton Smith, and 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).

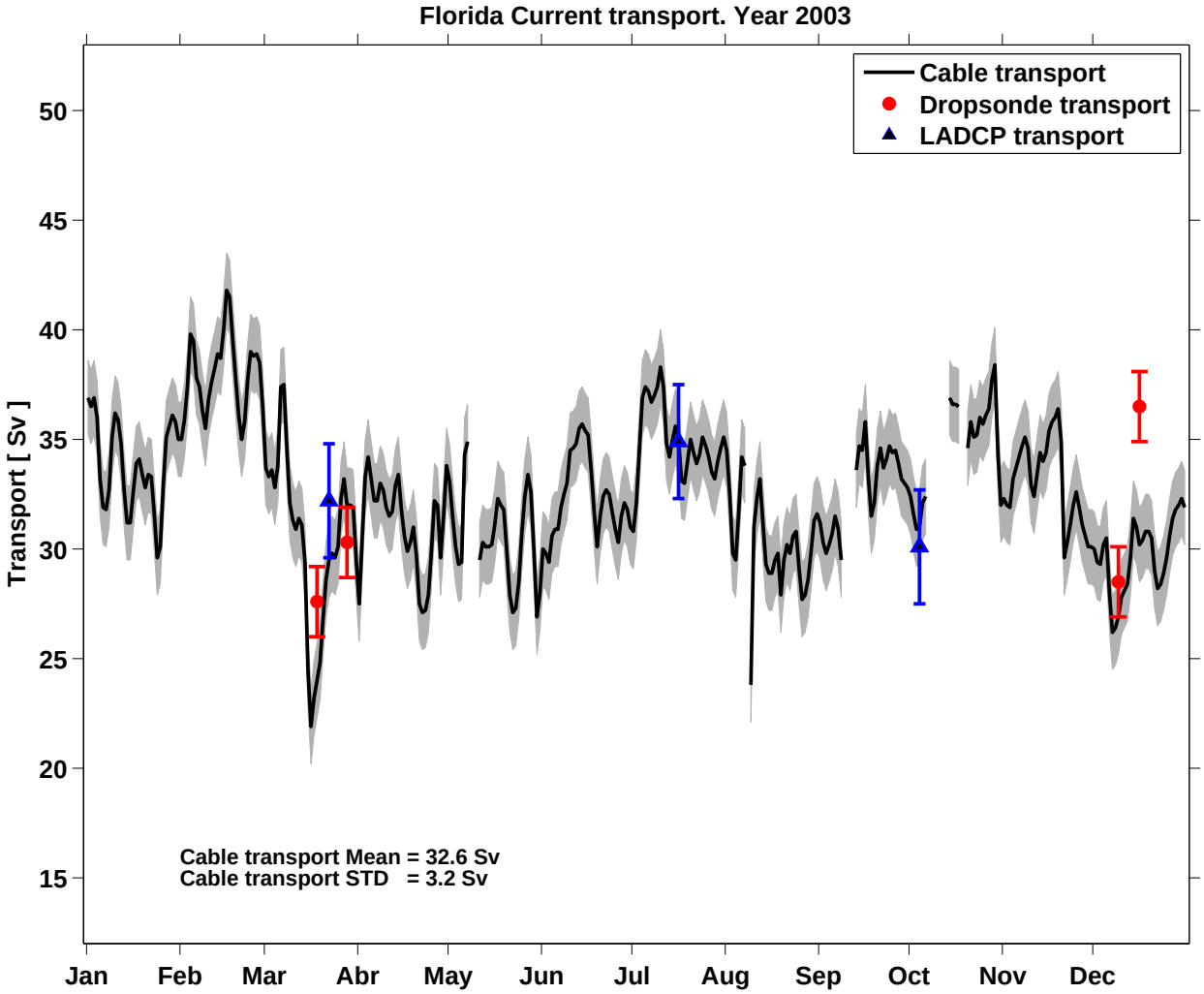

Figure 2: Observed Florida Current volume transports measured by cable voltage (black line), dropsonde sections (red dots) and LADCP sections (blue triangles). For each measurement system the estimated error bar is also shown. The annual mean and standard deviation (STD) from the cable voltage estimates 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	2003	3	18	15	27.1	27.6
2	2003	3	28	17	30.0	30.3
3	2003	7	3	16	NaN	NaN
4	2003	12	9	15	26.0	28.5
5	2003	12	16	15	36.5	36.5

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.

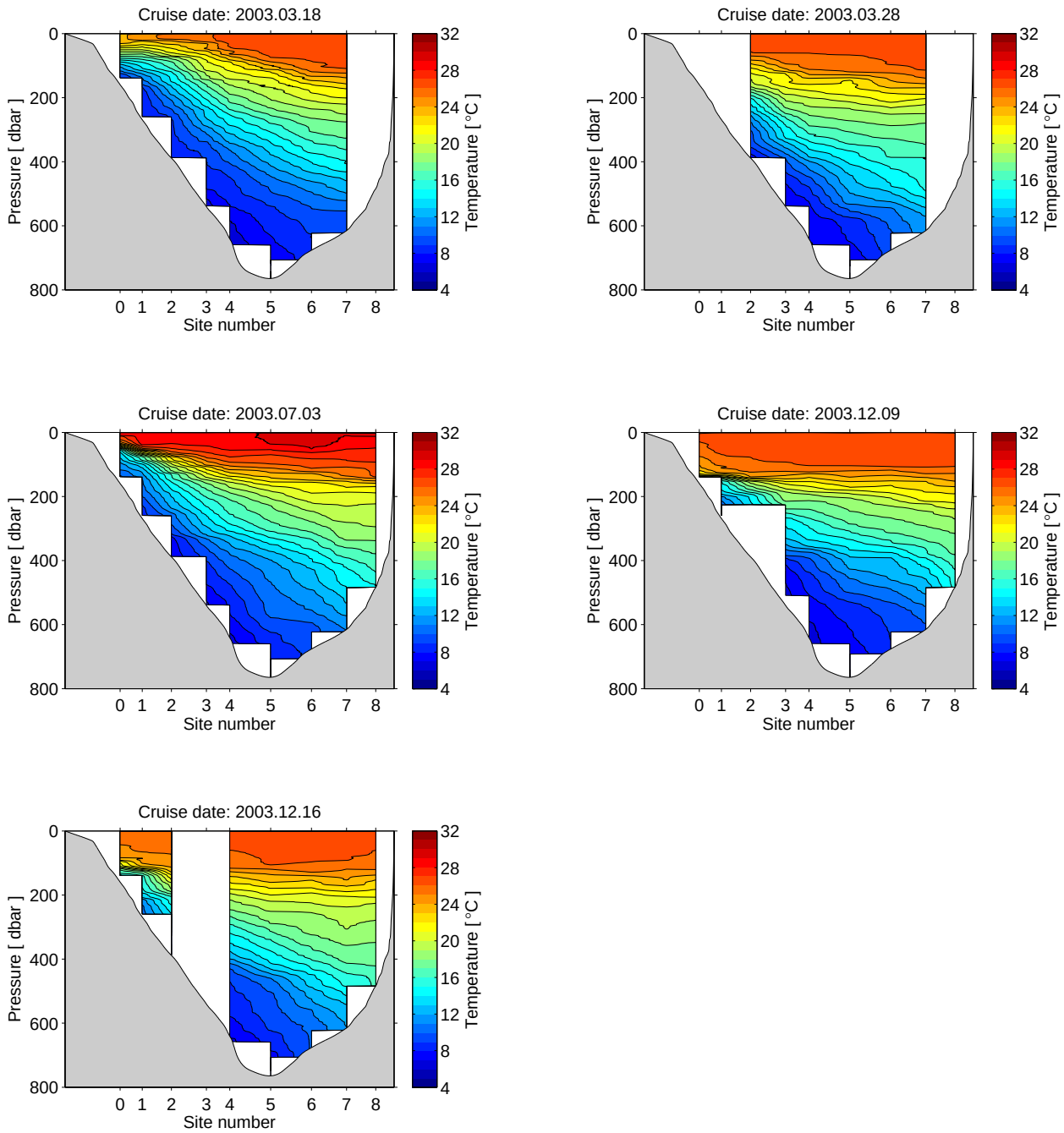

Figure 3: Temperature sections measured with XBT on the indicated dates. Date format is year, month, and day.

4 CTD - LADCP - SADCP cruises

This section includes data from cruises on the R/V Walton Smith. Each cruise collects CTD/LADCP profiles at the nine stations given in Table 1. Transports from these cruises are estimated by first vertically-averaging the LADCP profiles, and the resulting vertical mean velocities are horizontally-integrated in the same manner as the dropsonde observations - see Garcia and Meinen (2014) for more detail.

The cruise dates and the estimated section transports, are shown in Table 3, and are plotted in Figure 2 with the corresponding error bars. For each cruise the horizontal vertically-mean LADCP velocity measurements are listed in Appendix D.

Vertical property sections (temperature, salinity, dissolved oxygen, zonal and meridional velocity) for each cruise are shown in the figures in this section of the report, beginning with Figure 4. Tables listing the data profiles for each station on each cruise are presented in Appendix E. Details of the processing and quality control of the CTD data follow the methods shown in Hooper and Baringer (2015). The LADCP processing incorporates CTD and SADCP data when possible and follows the methods presented in Visbeck (2002) and Thurnherr (2010); the SADCP processing used the methods shown in Firing et al. (2012).

Cruise ID	Year	Month	Day	Hour mean	Transport	Transport detided
ws0307	2003	3	22	16	32.3	32.2
ws0320	2003	7	16	14	34.8	34.9
ws0327	2003	10	4	7	29.8	30.1

Table 3: CTD/LADCP/SADCP cruise information: cruise identification, cruise date, and transport values estimated using LADCP data, with and without the tide signals. Values of NaN indicate transport can not be estimated.

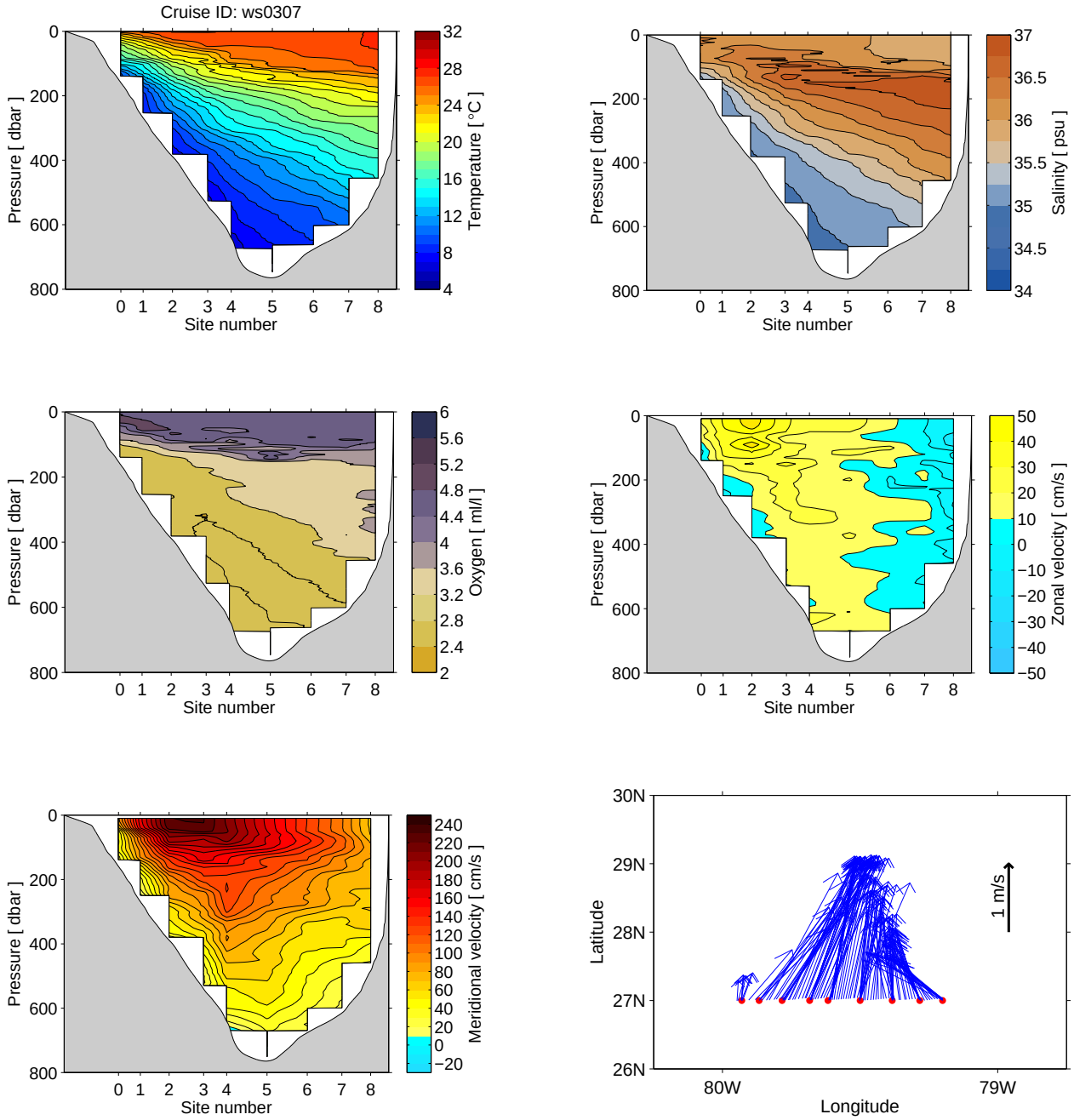

Figure 4: Sections of temperature, salinity, dissolved oxygen (all from CTD), velocity profile (LADCP) and vector velocity map at 50m (SADCP) collected by research vessel. Cruise ID noted above the temperature panel; cruise date are shown in Table 3.

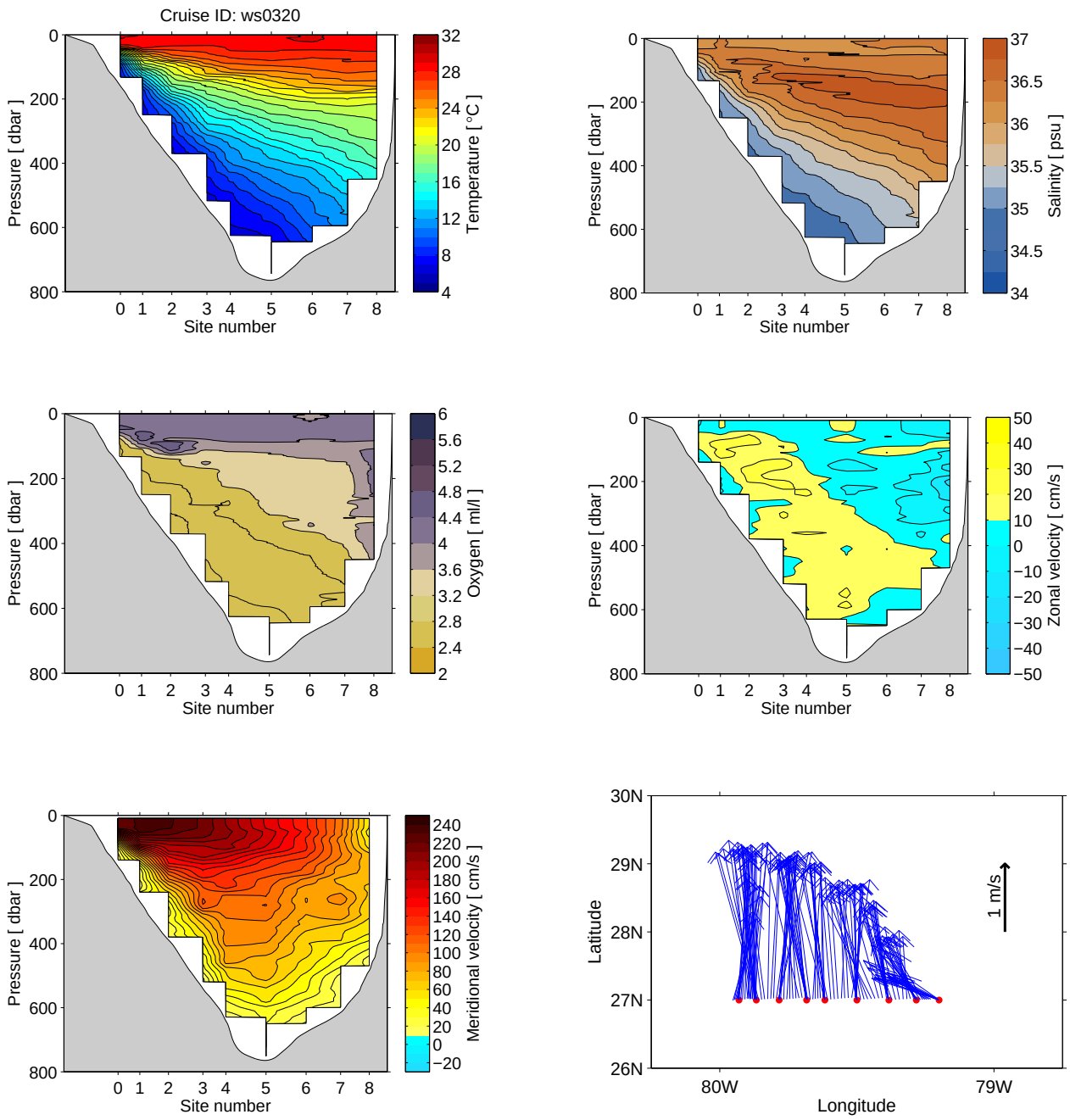

Figure 5: Same as Figure 4 for the data collected on the cruise ID indicated above the temperature panel.

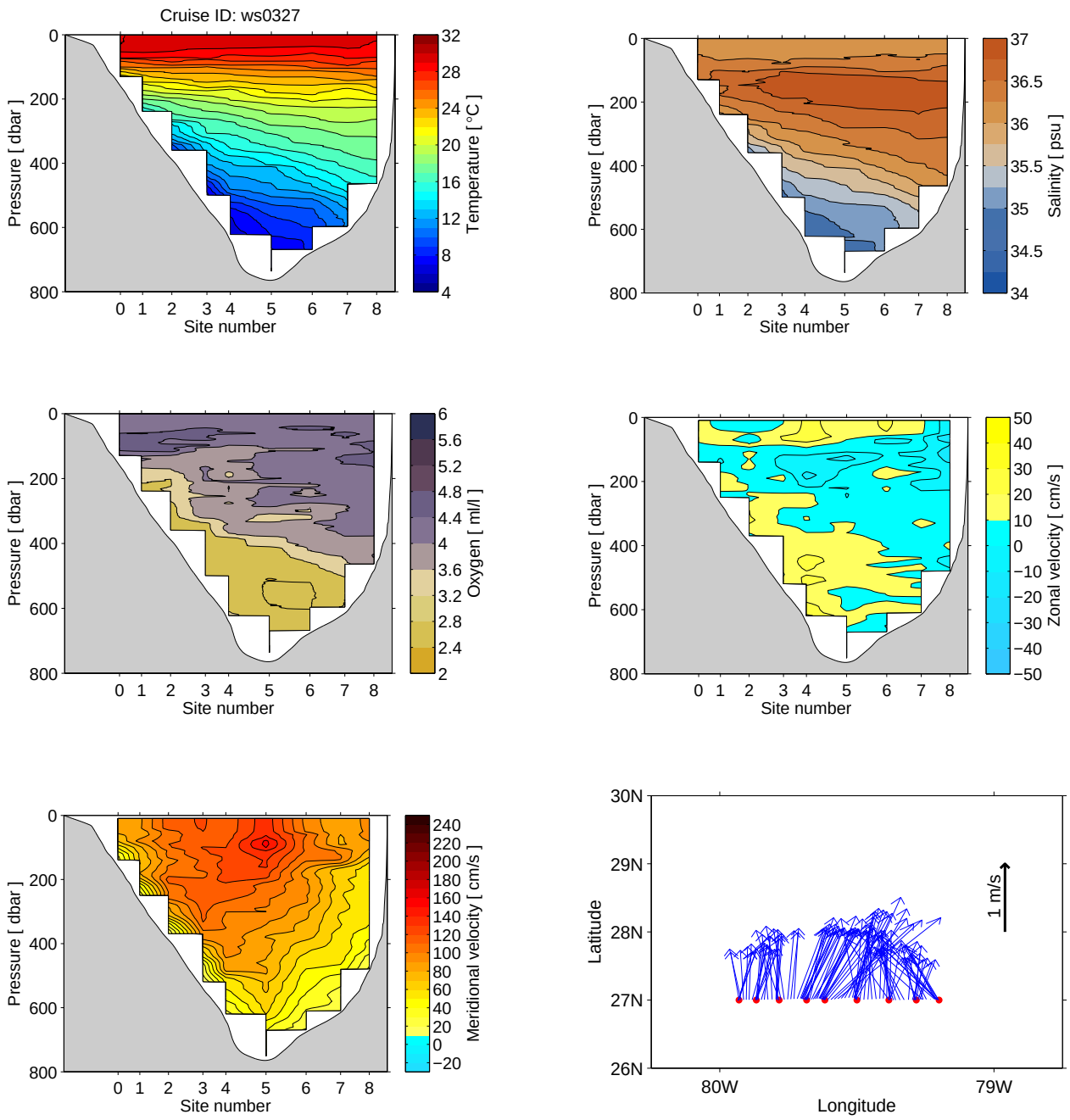

Figure 6: Same as Figure 4 for the data collected on the cruise ID indicated above the temperature panel.

5 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.

5.1 Cable observations

The cable voltage recording system failed during three days in May, one day in August, four days in September, and nine days in October. As a result, for the following dates there are no cable transport estimates: May 8-10; August 8; September 9-12; October 7-13; and October 18-19. 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.

5.2 Dropsonde - XBT cruises

Several problems arose during the year involving both the dropsonde and XBT systems.

During the cruise of July 3, the dropsonde instrument was lost, and no transport estimate is available for that section. Also, during the two cruises in December, the dropsonde instrument failed at one station in each cruise; transport was calculated for both cruises.

The XBT system failed at three stations during the cruise of March 28, and no data were collected at those sites. During the cruises of March 18 and December 16, the XBT system failed at one station each, and no data were collected at those stations. Also, during the cruise of December 9, the XBT system failed at one station before the probe reached the bottom.

5.3 CTD - LADCP - SADCP cruises

During 2003, standard SADCP data collection methods included the use of a 150 kHz RDI Ocean Surveyor SADCP (OS150), which continuously measured near-surface currents to a depth of 200 meters. For LADCP, a single downward-facing 300 kHz RDI Workhorse (WH300) was deployed at each of the 9 historical stations across the Florida Straits.

The following LADCP casts were found to exceed a 30 degree wire angle at some point during their deployment: cruise ws0307 stations 3 and 4; and cruise ws0320 stations 0-3. As a result, velocity profiles for these casts may not accurately represent the true ocean velocity. These profiles should

be used with caution. All other LADCP and SADCP data were found to be suitable for scientific analysis.

No usable oxygen bottle sample data were collected for calibration of the electronic sensor data for the ws0320 cruise. For the ws0327 cruise, no bottle sample data for salinity or dissolved oxygen were collected. An approximate calibration of the electronic sensor data was applied using bottle sample observations from a former cruise (for ws0320) or from a later cruise (for ws0327) where the same electronic sensors had been used. These profiles should be used with caution.

6 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 and LADCP section transports, can be obtained from the project web page (www.aoml.noaa.gov/phod/floridacurrent). See the "Data Access" subpage.

The processed CTD profile, LADCP profile, and SADCP profile data sets can be obtained from the WBTS project web page (www.aoml.noaa.gov/phod/wbts/) under the "Data and Results" subpage. The raw dropsonde observations and the XBT profiles at full vertical resolution can be found via the same page.

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

7 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 (Craig Engler, Benjamin Kates, Jeff Kelley, and Ulises Rivero) and in the R/V Walton Smith CTD/LADCP/SADCP cruises (Robert Birch, Libby Johns, Benjamin Kates, Nelson Melo, Grant Rawson, Jessica Redman, and Ulises Rivero). 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 George Berberian, Yeun-Ho Daneshzadeh, and Chris Duncombe Rae. 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.

8 References

Daneshzadeh, Y.-H. C., J. F. Festa, and S. M. Minton, 1994: **Procedures used at AOML to Quality Control Real Time XBT Data Collected in the Atlantic Ocean**, *NOAA Technical Memorandum ERL AOML-78*, 44 pp.

Garcia, R. F., and C. S. Meinen, 2014: **Accuracy of Florida Current volume transport measurements at 27N using multiple observational techniques**, *J. Atmos. Ocean. Tech.*, **31** (5), 1169-1180, 10.1175/JTECH-D-13-00148.1.

Firing, E., J. M. Hummon, and T. K. Chereskin, 2012: **Improving the quality and accessibility of current profile measurements in the Southern Ocean**. *Oceanography* **25**(3):164165, http://dx.doi.org/10.5670/oceanog.2012.91.

Hooper, J. A., and M. O. Baringer, 2015: **Hydrographic measurements collected aboard the UNOLS Ship R/V Walton Smith, 2014: Western Boundary Time Series cruise: Florida Current**. *NOAA Data Report, OAR-AOML-50*, 122 pp.

Larsen, J. C., 1992: **Transport and heat flux of the Florida Current at 27N derived from cross-stream voltages and profiling data: theory and observations**. *Philosophical Transactions of the Royal Society of London A*, **338**, 169-236.

Larsen, J. C., and T. B. Sanford, 1985: **Florida Current volume transports from voltage measurements**. *Science*, **227**, 302-304.

Meinen, C. S., M. O. Baringer, and R. F. Garcia, 2010: **Florida Current Transport Variability: An Analysis of Annual and Longer-Period Signals**, *Deep Sea Res. I*, **57** (7), 835-846, doi:10.1016/j.dsr.2010.04.001.

Thurnherr, A. M., 2010: **A Practical Assessment of the Errors Associated with Full-Depth LADCP Profiles Obtained Using Teledyne RDI Workhorse Acoustic Doppler Current Profilers**. *J. Atmos. Oceanic Technol.*, **27**, 1215-1227, doi: 10.1175/2010JTECHO708.1.

Visbeck, M., 2002: **Deep velocity profiling using lowered acoustic Doppler current profilers: Bottom track and inverse solutions**. *J. Atmos. Oceanic. Technol.*, **19**, 794-807.

Appendix A:

Daily Florida Current transport data

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	36.9	35.0	33.7	27.5	33.1	30.0	30.8	34.5	31.2	32.4	32.3	30.0
2	36.5	35.9	33.3	30.5	31.5	29.8	32.1	32.5	30.3	31.6	32.0	29.4
3	36.9	37.4	33.6	33.3	30.1	29.4	34.5	29.8	29.8	30.9	31.9	29.3
4	36.0	39.8	32.8	34.2	29.3	30.6	36.9	29.5	30.2	31.0	33.2	30.2
5	33.2	39.5	33.8	33.2	29.4	30.9	37.4	31.7	30.7	32.1	33.7	30.5
6	31.9	37.8	37.4	32.2	34.3	30.9	37.2	34.2	31.5	32.4	34.2	28.0
7	31.8	37.4	37.5	32.2	34.9	31.9	36.7	33.8	30.9	NaN	34.7	26.2
8	32.7	36.3	34.6	33.0	NaN	32.5	37.0	NaN	29.5	NaN	35.1	26.4
9	35.1	35.5	32.1	32.7	NaN	33.0	37.4	23.8	NaN	NaN	34.6	26.9
10	36.2	36.8	31.3	31.9	NaN	34.5	38.3	31.0	NaN	NaN	32.9	27.8
11	35.9	37.6	30.9	31.5	29.5	34.6	37.4	32.3	NaN	NaN	32.4	28.1
12	34.8	38.2	31.4	31.7	30.3	34.8	34.8	33.2	NaN	NaN	33.4	28.4
13	32.7	38.9	31.1	32.9	30.1	35.5	34.2	31.2	33.6	NaN	34.4	29.6
14	31.2	38.7	29.4	33.4	30.1	35.7	35.0	29.3	34.7	36.9	34.0	31.4
15	31.2	40.0	24.4	31.8	30.2	35.4	35.6	28.9	34.5	36.6	34.4	31.0
16	32.6	41.8	21.9	30.6	31.1	35.2	35.0	28.9	35.8	36.6	35.4	30.2
17	33.9	41.5	23.2	29.9	32.3	33.6	33.1	29.5	33.3	36.5	35.8	30.4
18	34.1	39.6	24.0	30.3	32.0	31.7	33.0	29.8	31.5	NaN	36.0	30.8
19	33.4	37.8	24.8	31.0	31.8	30.1	34.0	27.9	32.1	NaN	36.4	30.8
20	32.8	36.1	26.8	29.7	29.9	31.5	35.0	29.5	33.8	34.6	34.9	30.5
21	33.4	35.0	28.6	27.5	27.9	32.4	34.4	30.2	34.6	35.8	29.6	29.0
22	33.3	35.8	29.5	27.1	27.1	32.7	33.9	29.8	33.7	35.1	30.3	28.2
23	31.6	37.7	29.8	27.2	27.3	32.5	34.3	30.6	34.1	35.2	31.1	28.4
24	29.6	39.0	29.6	27.9	28.5	31.7	35.1	30.8	34.7	36.0	32.0	28.9
25	30.1	38.8	30.1	29.9	30.7	30.9	34.7	29.1	34.4	35.7	32.6	29.6
26	32.9	38.9	32.3	32.2	32.4	30.3	34.2	27.7	34.5	36.1	31.9	30.6
27	35.1	38.5	33.2	32.0	33.4	31.5	33.5	27.9	33.9	36.4	31.1	31.4
28	35.6	36.4	32.0	29.6	32.6	32.1	33.2	28.6	33.2	37.7	30.6	31.8
29	36.1	–	32.0	31.5	29.9	31.8	34.0	29.9	33.0	38.4	30.1	32.0
30	35.8	–	31.9	33.8	26.9	31.0	34.6	31.3	32.8	34.4	30.1	32.3
31	35.0	–	29.5	–	28.0	–	35.1	31.6	–	32.0	–	31.9

Table 4: 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: 2003.03.18								
0	12: 0:10	-79.9298	26.9994	12: 5:36	-79.9295	26.9994	7.58	-0.49
1	12:21: 3	-79.8664	26.9996	12:30:45	-79.8661	27.0021	4.96	47.28
2	12:48:26	-79.7830	27.0004	13: 2:10	-79.7826	27.0056	2.65	69.48
3	13:30:54	-79.6834	27.0008	13:49:58	-79.6827	27.0098	6.02	86.17
4	14: 7:29	-79.6169	27.0004	14:31:27	-79.6164	27.0105	4.07	76.14
5	14:59:25	-79.5002	27.0002	15:25:57	-79.4999	27.0101	1.65	68.58
6	15:49:57	-79.3832	27.0002	16:13:33	-79.3834	27.0080	-1.68	60.01
7	16:34:31	-79.2833	27.0001	16:58: 3	-79.2837	27.0066	-3.36	49.72
8	17:17:37	-79.2003	26.9997	17:36:15	-79.2019	27.0052	-14.13	53.55
Cruise date: 2003.03.28								
0	20: 8:27	-79.9301	27.0010	20:16:27	-79.9304	27.0054	-5.44	101.38
1	19:40: 9	-79.8669	27.0006	19:53:15	-79.8671	27.0071	-3.39	89.28
2	19: 2:33	-79.7831	27.0018	19:21:51	-79.7832	27.0116	-0.85	92.01
3	18:15: 0	-79.6827	27.0010	18:41:28	-79.6825	27.0132	1.06	84.07
4	17:25:25	-79.6169	27.0000	17:56:45	-79.6165	27.0135	1.96	78.82
5	16:21:57	-79.5002	27.0011	16:59:27	-79.5003	27.0171	-0.05	78.05
6	15:25: 0	-79.3839	27.0010	15:58:46	-79.3843	27.0119	-1.80	59.01
7	14:34:49	-79.2837	27.0006	15: 5:39	-79.2847	27.0082	-5.25	45.66
8	13:42:39	-79.2007	27.0004	14:16: 9	-79.2025	27.0061	-8.38	31.71
Cruise date: 2003.12.09								
0	12:20: 6	-79.9304	26.9984	12:32:21	-79.9311	27.0007	-9.90	34.96
1	12:54:15	-79.8667	26.9993	13: 4: 9	-79.8670	27.0022	-4.07	52.46
2	–	–	–	–	–	–	NaN	NaN
3	14: 4:16	-79.6836	26.9992	14:24:33	-79.6836	27.0082	0.39	81.05
4	14:43:41	-79.6170	26.9998	15: 6:51	-79.6165	27.0102	4.20	82.60
5	15:34:33	-79.5004	26.9997	16: 1:33	-79.5002	27.0098	1.78	68.20
6	16:30:14	-79.3836	26.9996	16:54:21	-79.3837	27.0061	-0.21	49.51
7	17:18:30	-79.2837	26.9993	17:41:51	-79.2843	27.0039	-3.80	35.52
8	18: 1:17	-79.1999	27.0000	18:18:45	-79.2015	27.0045	-15.28	47.32

Table 5: 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: 2003.12.16								
0	12:14:38	-79.9312	27.0019	12:20: 0	-79.9314	27.0044	-4.86	85.50
1	12:38: 5	-79.8671	26.9995	12:47:33	-79.8676	27.0039	-8.81	85.76
2	13: 6:55	-79.7836	27.0002	13:21: 3	-79.7845	27.0092	-10.36	116.10
3	13:45:16	-79.6835	27.0005	14: 4:51	-79.6847	27.0143	-9.37	128.78
4	14:24:40	-79.6170	27.0001	14:47:44	-79.6180	27.0144	-6.60	113.30
5	15:14:59	-79.5001	27.0003	15:42:45	-79.5005	27.0137	-2.26	87.74
6	16: 7:44	-79.3833	26.9999	16:33: 3	-79.3836	27.0084	-1.87	62.44
7	–	–	–	–	–	–	NaN	NaN
8	17:35:53	-79.2001	26.9995	17:52: 9	-79.2013	27.0032	-12.14	42.09

Table 6: Same as Table 5 for dropsonde measurements during the cruises on the indicated dates.

Appendix C:

XBT temperature profiles

Cruise date: 2003.03.18									
Depth	Sta. 0	Sta. 1	Sta. 2	Sta. 3	Sta. 4	Sta. 5	Sta. 6	Sta. 7	Sta. 8
0	23.06	23.51	24.86	25.50	25.44	25.36	26.36	25.75	NaN
10	23.66	24.70	25.31	25.85	26.37	26.71	26.89	26.88	NaN
20	23.65	24.21	24.20	25.75	26.38	26.70	26.88	26.85	NaN
30	23.30	22.33	23.40	24.12	26.24	26.79	26.89	26.85	NaN
40	21.78	21.05	22.59	23.93	26.10	26.69	26.89	26.87	NaN
50	20.04	20.05	21.65	23.79	25.45	26.67	26.75	26.79	NaN
60	18.39	18.33	20.98	22.54	24.88	26.40	26.44	26.68	NaN
70	17.15	17.26	19.84	21.85	24.03	26.10	26.32	26.54	NaN
80	15.25	16.04	17.87	21.23	23.14	25.74	26.06	26.33	NaN
90	13.69	14.97	16.82	20.89	21.89	24.86	25.93	26.29	NaN
100	12.55	14.26	16.49	20.55	21.49	23.85	25.83	26.30	NaN
110	11.63	13.83	15.93	20.35	21.20	23.40	25.53	25.96	NaN
120	10.69	12.63	14.97	19.36	20.87	22.00	24.96	25.23	NaN
130	9.19	11.70	14.40	19.01	20.54	21.45	24.37	24.53	NaN
140	–	11.00	14.17	18.74	20.18	20.84	23.63	23.72	NaN
150	–	10.32	14.02	17.53	19.53	20.56	22.72	23.34	NaN
160	–	9.85	13.28	16.97	19.07	20.41	21.98	22.83	NaN
170	–	8.89	12.83	16.64	18.65	19.80	21.43	22.15	NaN
180	–	8.54	12.45	16.08	18.40	19.45	21.07	21.86	NaN
190	–	8.36	12.12	15.65	17.96	19.33	20.75	21.72	NaN
200	–	8.33	11.38	15.32	17.34	19.15	20.38	21.16	NaN
210	–	8.23	10.92	14.78	17.16	18.84	19.99	20.51	NaN
220	–	8.22	10.72	14.53	16.67	18.51	19.63	20.02	NaN
230	–	8.16	10.28	13.82	16.31	18.15	19.20	19.64	NaN
240	–	8.08	9.89	13.28	15.83	17.85	18.79	19.16	NaN
250	–	8.08	9.53	13.25	15.17	17.19	18.58	19.09	NaN
260	–	8.06	9.11	13.17	14.78	16.76	18.23	18.70	NaN
270	–	–	8.88	12.81	14.39	16.26	17.73	18.30	NaN
280	–	–	8.80	12.51	14.21	16.02	17.45	17.90	NaN
290	–	–	8.80	11.92	13.77	15.52	17.19	17.88	NaN
300	–	–	8.79	11.41	13.48	15.29	17.11	17.82	NaN
350	–	–	8.49	9.67	11.55	13.76	15.66	16.19	NaN
400	–	–	–	9.01	10.14	12.31	14.05	15.04	NaN
450	–	–	–	8.60	8.96	10.85	12.49	13.13	NaN
500	–	–	–	7.54	8.60	9.88	10.94	11.93	–
550	–	–	–	–	7.77	8.81	9.97	10.10	–
600	–	–	–	–	6.78	8.36	9.18	9.50	–
650	–	–	–	–	6.37	7.89	8.92	–	–
700	–	–	–	–	–	7.18	8.59	–	–
750	–	–	–	–	–	6.69	–	–	–

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: 2003.03.28									
Depth	Sta. 0	Sta. 1	Sta. 2	Sta. 3	Sta. 4	Sta. 5	Sta. 6	Sta. 7	Sta. 8
0	NaN	NaN	25.81	26.29	26.73	25.98	25.92	25.89	NaN
10	NaN	NaN	26.12	26.38	26.26	26.47	26.79	26.87	NaN
20	NaN	NaN	26.16	26.35	26.23	26.41	26.78	26.87	NaN
30	NaN	NaN	26.15	26.33	26.24	26.40	26.78	26.87	NaN
40	NaN	NaN	26.16	26.27	26.22	26.39	26.77	26.86	NaN
50	NaN	NaN	26.11	26.27	26.02	26.39	26.77	26.86	NaN
60	NaN	NaN	25.98	26.14	26.00	26.24	26.55	26.87	NaN
70	NaN	NaN	24.99	25.45	25.95	25.79	26.39	26.88	NaN
80	NaN	NaN	24.29	25.37	25.82	25.49	26.21	26.86	NaN
90	NaN	NaN	23.08	25.26	25.65	25.23	26.09	26.86	NaN
100	NaN	NaN	22.38	24.51	25.37	25.16	25.79	26.36	NaN
110	NaN	NaN	21.67	23.99	25.10	25.20	25.60	26.18	NaN
120	NaN	NaN	21.19	22.85	24.42	24.97	25.22	25.83	NaN
130	NaN	NaN	20.72	21.87	23.92	23.89	24.51	25.32	NaN
140	–	NaN	20.17	21.73	22.95	22.62	24.16	24.99	NaN
150	–	NaN	19.92	21.88	22.57	21.87	23.91	24.52	NaN
160	–	NaN	19.59	21.52	21.94	21.61	23.67	23.54	NaN
170	–	NaN	18.74	20.94	21.54	21.77	22.99	22.90	NaN
180	–	NaN	17.54	20.51	20.91	21.47	22.20	22.35	NaN
190	–	NaN	16.23	19.89	20.53	21.13	21.85	21.89	NaN
200	–	NaN	15.33	19.39	20.01	20.50	21.53	21.10	NaN
210	–	NaN	14.47	19.00	19.47	20.21	21.25	20.59	NaN
220	–	NaN	14.12	18.45	19.17	19.80	20.55	20.00	NaN
230	–	NaN	13.34	18.11	18.89	19.26	20.05	19.73	NaN
240	–	NaN	13.20	17.58	18.51	18.79	19.57	19.49	NaN
250	–	NaN	12.46	16.95	18.14	18.50	19.09	18.96	NaN
260	–	NaN	11.79	16.09	17.84	18.33	18.68	18.65	NaN
270	–	–	11.46	15.72	17.53	18.08	18.42	18.25	NaN
280	–	–	10.82	15.27	17.20	17.73	18.27	17.98	NaN
290	–	–	10.62	14.93	16.88	17.45	17.92	17.88	NaN
300	–	–	10.18	14.54	16.37	17.19	17.65	17.64	NaN
350	–	–	9.24	12.30	14.27	15.74	16.37	16.97	NaN
400	–	–	–	9.85	11.88	14.23	15.48	15.98	NaN
450	–	–	–	8.39	9.85	12.87	14.29	15.37	NaN
500	–	–	–	7.50	8.73	11.92	12.90	14.78	–
550	–	–	–	–	7.76	10.08	10.78	12.72	–
600	–	–	–	–	7.38	8.22	10.12	11.73	–
650	–	–	–	–	6.95	7.99	9.58	–	–
700	–	–	–	–	–	7.14	9.44	–	–
750	–	–	–	–	–	6.94	–	–	–

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

Cruise date: 2003.07.03									
Depth	Sta. 0	Sta. 1	Sta. 2	Sta. 3	Sta. 4	Sta. 5	Sta. 6	Sta. 7	Sta. 8
0	28.42	28.25	27.85	27.69	28.36	28.24	27.84	27.64	26.68
10	27.78	28.67	28.64	28.76	28.86	29.06	29.13	29.00	29.10
20	26.22	28.62	28.60	28.75	28.84	29.06	29.09	28.98	28.61
30	24.72	28.62	28.60	28.74	28.81	29.02	29.10	28.95	28.24
40	21.87	27.80	27.58	28.40	28.77	28.91	29.06	28.93	28.21
50	16.75	25.98	27.00	27.60	28.33	28.14	29.02	28.25	27.91
60	14.11	21.77	26.10	27.14	27.93	27.58	28.31	27.69	27.65
70	13.26	18.58	24.17	26.61	27.37	26.98	27.65	27.30	27.58
80	13.01	16.42	22.08	25.93	26.80	26.53	27.20	27.04	27.44
90	12.34	15.31	21.29	24.98	26.24	26.28	26.62	26.95	27.15
100	11.59	13.82	19.84	24.27	25.50	25.91	26.26	26.75	26.75
110	11.32	13.02	18.53	22.40	24.65	25.14	26.07	25.85	26.39
120	10.54	12.24	17.91	21.61	23.56	24.18	25.52	25.45	26.18
130	10.02	11.87	16.12	20.77	22.67	23.85	23.78	25.34	26.16
140	–	11.45	15.93	20.05	21.57	23.04	23.29	24.50	25.77
150	–	10.91	15.27	18.70	20.53	22.34	22.86	23.32	24.48
160	–	10.86	14.76	17.91	19.51	21.81	21.49	22.49	22.59
170	–	10.68	14.31	17.47	19.07	20.79	21.38	22.03	21.93
180	–	10.58	13.93	16.91	18.48	20.19	21.28	21.43	21.55
190	–	10.27	13.22	16.61	17.95	19.60	20.98	20.86	20.98
200	–	9.96	13.03	16.07	17.38	19.27	20.79	20.60	20.91
210	–	9.59	12.77	15.60	17.01	18.87	20.42	20.29	20.59
220	–	9.31	12.46	15.34	16.65	18.42	20.00	20.10	20.06
230	–	8.90	12.22	15.07	16.47	17.96	19.70	20.01	19.83
240	–	8.68	11.73	14.73	16.40	17.85	19.31	19.94	19.67
250	–	8.68	11.06	14.47	16.12	17.56	18.87	19.84	19.43
260	–	8.59	10.55	13.99	15.85	17.37	18.55	19.80	19.40
270	–	–	10.39	13.81	15.55	17.25	18.20	19.67	19.37
280	–	–	10.18	13.49	15.23	16.98	17.96	19.06	19.31
290	–	–	9.91	13.21	14.81	16.80	17.72	18.77	19.19
300	–	–	9.68	12.79	14.31	16.45	17.36	18.56	18.62
350	–	–	7.47	10.36	11.98	13.92	15.55	17.68	17.69
400	–	–	–	9.03	10.51	11.93	13.95	15.77	16.51
450	–	–	–	8.25	9.52	11.26	12.70	14.55	15.54
500	–	–	–	7.57	8.70	10.76	11.80	13.52	–
550	–	–	–	–	8.06	10.37	11.13	12.48	–
600	–	–	–	–	7.45	9.60	9.87	11.39	–
650	–	–	–	–	6.72	8.75	9.61	–	–
700	–	–	–	–	–	8.12	9.31	–	–
750	–	–	–	–	–	7.19	–	–	–

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

Cruise date: 2003.12.09									
Depth	Sta. 0	Sta. 1	Sta. 2	Sta. 3	Sta. 4	Sta. 5	Sta. 6	Sta. 7	Sta. 8
0	24.52	25.44	25.11	25.38	26.11	24.45	25.93	26.12	24.74
10	26.04	26.41	26.59	26.80	26.86	26.78	26.83	26.78	26.69
20	26.03	26.41	26.60	26.79	26.84	26.78	26.82	26.76	26.68
30	25.98	26.38	26.59	26.79	26.85	26.77	26.82	26.77	26.70
40	25.78	26.33	26.59	26.80	26.85	26.77	26.83	26.77	26.70
50	25.80	26.24	26.58	26.80	26.85	26.78	26.82	26.77	26.70
60	25.66	26.16	26.50	26.79	26.86	26.78	26.83	26.78	26.70
70	25.39	25.98	26.33	26.78	26.84	26.78	26.82	26.77	26.69
80	24.70	25.89	25.97	26.73	26.84	26.78	26.83	26.76	26.52
90	24.49	25.50	25.80	26.33	26.85	26.78	26.82	26.75	26.28
100	24.19	25.38	25.58	25.55	26.45	26.26	26.53	26.72	26.32
110	23.90	25.02	25.51	25.37	25.55	25.90	25.79	25.78	25.80
120	22.85	24.75	25.14	25.17	25.23	25.00	24.88	25.49	25.34
130	21.92	22.71	24.37	24.48	23.78	24.40	24.20	24.91	24.91
140	–	19.16	23.75	23.49	23.02	23.97	23.46	24.17	24.74
150	–	15.83	20.97	22.49	22.46	23.30	23.03	23.27	24.18
160	–	14.87	18.83	21.15	21.64	22.53	22.21	22.88	23.54
170	–	14.13	17.78	20.53	20.90	22.02	21.92	22.71	22.98
180	–	13.96	16.83	19.68	20.31	21.09	21.70	22.08	22.38
190	–	13.21	15.42	18.82	19.37	20.06	20.95	21.95	22.02
200	–	12.06	14.23	18.63	18.79	19.36	20.25	21.76	21.55
210	–	11.23	14.09	18.31	18.23	18.81	19.83	21.34	21.35
220	–	10.71	13.91	17.69	17.62	18.49	19.45	20.50	21.01
230	–	10.44	NaN	17.34	17.42	18.23	18.98	19.58	20.87
240	–	10.22	NaN	16.92	17.00	18.07	18.52	19.25	19.85
250	–	10.12	NaN	16.20	16.68	17.86	18.42	18.77	19.67
260	–	10.06	NaN	15.62	16.32	17.74	18.17	18.70	19.26
270	–	–	NaN	14.61	15.91	17.43	17.94	18.50	19.01
280	–	–	NaN	14.23	15.44	17.16	17.71	18.23	18.66
290	–	–	NaN	14.04	15.11	16.87	17.60	18.06	18.49
300	–	–	NaN	13.93	14.93	16.44	17.34	17.85	18.27
350	–	–	NaN	11.98	13.37	14.43	15.52	16.44	17.58
400	–	–	–	8.61	9.77	12.52	12.79	14.67	16.67
450	–	–	–	7.18	8.67	11.13	12.10	13.20	15.54
500	–	–	–	6.71	8.11	10.03	10.69	12.17	–
550	–	–	–	–	7.39	8.61	9.41	10.82	–
600	–	–	–	–	6.84	8.10	9.16	9.97	–
650	–	–	–	–	6.70	7.77	8.97	–	–
700	–	–	–	–	–	7.51	NaN	–	–
750	–	–	–	–	–	7.12	–	–	–

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

Cruise date: 2003.12.16									
Depth	Sta. 0	Sta. 1	Sta. 2	Sta. 3	Sta. 4	Sta. 5	Sta. 6	Sta. 7	Sta. 8
0	24.97	24.71	24.87	NaN	25.81	25.52	25.50	25.82	25.78
10	25.80	25.55	25.39	NaN	26.48	26.38	26.49	26.50	26.46
20	25.68	25.55	25.38	NaN	26.48	26.38	26.48	26.49	26.45
30	25.24	25.55	25.36	NaN	26.45	26.38	26.48	26.49	26.45
40	25.04	25.38	25.33	NaN	26.41	26.39	26.48	26.50	26.29
50	24.65	25.42	25.32	NaN	26.22	26.38	26.48	26.50	26.15
60	24.52	25.33	25.33	NaN	26.00	26.38	26.48	26.48	26.02
70	24.41	24.87	25.04	NaN	25.75	26.38	26.44	26.32	25.92
80	24.15	24.27	24.88	NaN	25.50	26.33	26.22	26.04	25.86
90	23.53	24.13	24.79	NaN	25.17	26.25	26.11	26.02	25.81
100	20.96	24.06	24.91	NaN	25.10	26.19	25.88	25.43	25.53
110	20.33	23.10	24.22	NaN	25.29	25.82	25.73	25.33	25.26
120	17.43	20.23	23.64	NaN	24.61	24.98	25.46	24.99	25.03
130	16.20	17.26	22.90	NaN	23.76	24.47	24.98	24.75	24.49
140	–	15.76	21.88	NaN	23.22	23.78	23.98	24.24	23.81
150	–	15.47	21.13	NaN	22.64	23.35	23.42	24.05	23.32
160	–	15.37	20.26	NaN	22.01	23.04	22.73	23.93	22.54
170	–	15.16	19.35	NaN	21.59	22.30	22.36	23.20	22.49
180	–	14.92	19.08	NaN	21.07	21.96	21.92	22.71	22.28
190	–	14.59	17.98	NaN	20.33	21.39	21.21	21.97	21.61
200	–	13.42	16.68	NaN	19.79	21.00	20.80	21.35	21.38
210	–	12.70	15.70	NaN	19.25	20.45	20.54	20.83	20.75
220	–	11.38	15.38	NaN	18.88	19.95	20.11	20.58	20.05
230	–	11.12	15.07	NaN	18.57	19.72	19.91	20.26	19.83
240	–	10.77	14.67	NaN	18.23	19.29	19.59	19.85	19.68
250	–	10.69	14.29	NaN	17.82	19.06	19.11	19.56	19.45
260	–	10.50	13.96	NaN	17.34	18.72	18.87	19.49	19.33
270	–	–	13.70	NaN	16.89	18.45	18.72	19.39	19.15
280	–	–	12.83	NaN	16.53	18.21	18.52	19.18	18.98
290	–	–	11.68	NaN	16.04	17.90	18.48	19.14	18.75
300	–	–	11.18	NaN	15.72	17.25	18.41	19.05	18.60
350	–	–	8.47	NaN	13.99	15.75	17.59	18.11	17.95
400	–	–	–	NaN	11.95	14.33	16.04	17.30	17.28
450	–	–	–	NaN	9.35	11.72	13.81	15.84	16.16
500	–	–	–	NaN	8.80	10.11	12.48	14.33	–
550	–	–	–	–	8.24	9.65	11.49	12.98	–
600	–	–	–	–	7.64	9.25	10.47	12.10	–
650	–	–	–	–	6.77	8.50	10.11	–	–
700	–	–	–	–	–	7.55	10.11	–	–
750	–	–	–	–	–	6.96	–	–	–

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

Appendix D:

LADCP vertical mean velocities

Sta	Deployed			Surfaced			Mean Velocities	
	Time (GMT)	Lon	Lat	Time (GMT)	Lon	Lat	U cm/s	V cm/s
Cruise date: 2003.03.22								
0	22:20: 9	-79.9307	27.0005	22:28:16	-79.9301	27.0046	-0.11	39.68
1	21:27: 2	-79.8664	27.0036	21:42:17	-79.8650	27.0136	12.78	71.67
2	20: 9: 4	-79.7807	27.0046	20:29:21	-79.7768	27.0238	13.72	105.60
3	18:17:45	-79.6819	27.0061	18:46:28	-79.6772	27.0363	9.64	95.68
4	16:35:45	-79.6102	27.0123	17:10:38	-79.6040	27.0459	7.42	94.96
5	14:31:37	-79.5006	27.0065	15: 9:42	-79.4972	27.0382	4.55	75.89
6	12:36:19	-79.3826	27.0038	13:15:21	-79.3791	27.0340	-0.85	62.88
7	11: 2:31	-79.2816	27.0046	11:38:42	-79.2833	27.0260	-4.38	54.08
8	9: 9:24	-79.2009	27.0062	9:38:17	-79.2020	27.0183	-14.14	54.24
Cruise date: 2003.07.16								
0	19:57: 9	-79.9312	27.0048	20: 7:12	-79.9331	27.0148	-3.61	100.40
1	18:58: 0	-79.8694	27.0075	19:15: 9	-79.8719	27.0250	0.91	103.13
2	16:24:11	-79.7840	27.0058	16:43:36	-79.7844	27.0259	3.98	102.34
3	15: 3:14	-79.6833	27.0062	15:30:52	-79.6842	27.0333	3.34	102.62
4	13:50:37	-79.6170	27.0059	14:20: 5	-79.6179	27.0326	2.85	99.28
5	12:18:24	-79.5006	27.0057	12:56: 3	-79.5029	27.0365	0.65	81.76
6	10:51:33	-79.3841	27.0047	11:25:12	-79.3866	27.0294	-2.83	69.36
7	9:35:20	-79.2835	27.0037	10: 4:35	-79.2874	27.0210	-6.40	55.99
8	8:18:18	-79.2018	27.0031	8:42: 3	-79.2045	27.0150	-11.51	44.29
Cruise date: 2003.10.04								
0	11:41: 9	-79.9301	27.0015	11:48:52	-79.9312	27.0031	-0.26	53.01
1	10:51:13	-79.8672	27.0015	11: 4: 3	-79.8694	27.0037	-1.03	60.70
2	9:47:19	-79.7863	27.0011	10: 7:38	-79.7940	27.0094	0.84	80.71
3	8:25:17	-79.6863	27.0020	8:57:40	-79.7010	27.0197	0.45	84.22
4	6:56:59	-79.6195	27.0024	7:33:58	-79.6349	27.0222	2.72	84.30
5	5:22:10	-79.5023	27.0042	6: 3:56	-79.5105	27.0346	-1.78	80.23
6	3:51:15	-79.3822	27.0048	4:23: 9	-79.3759	27.0245	-1.70	60.75
7	2:31:29	-79.2850	27.0010	3: 0:51	-79.2955	27.0059	-3.52	49.85
8	1:10:13	-79.2038	27.0019	1:36:46	-79.2147	27.0135	-11.44	47.06

Table 12: Tables of vertically averaged velocity determined from lowered acoustic Doppler current profiler (LADCP) data collected during the indicated dates (see Table 3). Station numbers in left column are as shown in Table 1. Tables include information on where the LADCP cast was started ("Deployed"), where it ended ("Surfaced"), and the resulting estimated zonal (U) and meridional (V) vertically average velocity.

Appendix E:

CTD and LADCP profiles

Cruise ID: ws0307. Station: 0					
Pressure	Temperature	Salinity	Oxygen	U speed	V speed
[db]	[deg. C]	[psu]	[ml/l]	[cm/s]	[cm/s]
1	25.16	36.12	4.79	NaN	NaN
10	23.48	36.28	4.82	11.6	77.7
20	22.18	36.26	4.95	10.9	75.6
30	20.68	36.24	4.92	8.1	67.8
40	19.22	36.20	4.51	4.3	57.8
50	18.44	36.18	4.13	2.1	36.3
60	17.95	36.14	4.02	7.7	30.3
70	17.01	36.08	3.88	7.1	31.4
80	16.70	36.06	3.69	0.5	28.4
90	15.17	35.90	3.51	-3.9	29.2
100	14.22	35.80	3.20	-6.8	32.8
110	12.44	35.56	2.99	-13.0	32.1
120	11.52	35.44	2.94	-11.5	24.4
130	9.97	35.23	2.88	-7.9	16.3
140	9.54	35.17	2.84	-10.6	15.3

Table 13: Profiles of temperature, salinity, dissolved oxygen, zonal (U) and meridional (V) velocity observed during the cruise ID and station indicated with the combined CTD and LADCP. NaN indicates missing values.

Cruise ID: ws0307. Station: 1					
Pressure	Temperature	Salinity	Oxygen	U speed	V speed
[db]	[deg. C]	[psu]	[ml/l]	[cm/s]	[cm/s]
1	26.14	36.19	4.56	NaN	NaN
10	25.40	36.21	4.62	31.1	156.4
20	24.10	36.18	4.73	30.9	155.9
30	22.57	36.19	4.93	30.2	153.9
40	21.77	36.24	4.98	29.2	149.7
50	20.64	36.15	5.02	27.4	130.9
60	19.64	36.19	4.65	28.2	112.9
70	19.15	36.27	4.11	25.6	99.1
80	18.37	36.27	3.71	24.3	97.6
90	16.81	36.05	3.65	24.7	92.2
100	15.26	35.88	3.55	22.7	86.6
110	14.87	35.86	3.25	22.1	82.4
120	14.32	35.85	3.06	21.1	82.2
130	13.91	35.80	2.98	19.0	81.2
140	12.87	35.63	2.98	17.4	71.3
150	11.74	35.47	2.96	12.1	55.9
160	10.91	35.36	2.89	7.4	44.7
170	9.94	35.22	2.85	4.7	37.3
180	9.14	35.12	2.84	1.1	28.9
190	8.94	35.10	2.83	-2.3	21.5
200	8.55	35.05	2.82	-5.6	15.5
210	8.45	35.04	2.82	-6.9	14.8
220	8.40	35.03	2.82	-8.1	11.8
230	8.35	35.03	2.82	-10.3	9.7
240	8.32	35.03	2.83	-13.4	4.0
250	8.31	35.03	2.82	-13.3	-4.6

Table 14: Same as Table 13 for the cruise ID and the station number indicated.

Cruise ID: ws0307. Station: 2					
Pressure	Temperature	Salinity	Oxygen	U speed	V speed
[db]	[deg. C]	[psu]	[ml/l]	[cm/s]	[cm/s]
1	27.04	36.14	4.42	NaN	NaN
10	26.62	36.14	4.47	46.2	219.9
20	26.51	36.13	4.48	45.9	219.7
30	25.77	36.19	4.51	44.6	218.6
40	24.39	36.33	4.63	41.4	215.1
50	23.45	36.40	4.77	33.5	202.6
60	22.61	36.49	4.79	28.4	194.6
70	22.13	36.49	4.80	31.0	188.9
80	21.53	36.47	4.62	38.6	184.5
90	20.60	36.46	4.22	46.6	173.6
100	19.57	36.39	3.93	39.9	157.3
110	18.91	36.34	3.75	30.7	150.3
120	18.16	36.32	3.56	29.0	138.4
130	17.88	36.36	3.33	23.2	127.0
140	16.99	36.26	3.14	11.2	119.5
150	16.46	36.18	3.06	9.3	117.5
160	15.69	36.06	3.04	14.6	115.2
170	14.82	35.92	3.02	14.5	106.5
180	14.19	35.82	3.03	8.4	95.7
190	13.40	35.71	2.97	5.5	87.2
200	13.10	35.68	2.91	4.1	82.8
210	12.71	35.62	2.88	0.9	77.2
220	12.11	35.52	2.87	-0.3	72.1
230	11.95	35.50	2.85	-0.9	71.1
240	11.50	35.43	2.84	-0.2	73.6
250	10.95	35.35	2.81	-0.2	72.1
260	10.59	35.30	2.79	2.2	69.0
270	10.14	35.25	2.80	4.6	60.8
280	9.54	35.18	2.82	2.8	51.3
290	9.31	35.15	2.82	-0.6	45.1
300	8.97	35.11	2.81	-4.0	41.4
350	8.07	35.01	2.84	-4.6	32.8

Table 15: Same as Table 13 for the cruise ID and the station number indicated.

Cruise ID: ws0307. Station: 3					
Pressure	Temperature	Salinity	Oxygen	U speed	V speed
[db]	[deg. C]	[psu]	[ml/l]	[cm/s]	[cm/s]
1	27.08	36.13	4.44	NaN	NaN
10	26.78	36.11	4.47	21.9	220.5
20	26.63	36.10	4.50	21.8	220.3
30	26.39	36.12	4.50	21.3	219.4
40	26.31	36.16	4.49	20.6	217.6
50	25.72	36.36	4.39	19.8	215.0
60	24.36	36.35	4.63	10.6	193.4
70	23.21	36.49	4.77	3.5	182.0
80	22.62	36.52	4.79	6.6	177.6
90	21.97	36.50	4.68	14.3	174.8
100	22.22	36.82	3.66	16.2	169.4
110	21.08	36.54	4.21	13.7	164.4
120	20.70	36.60	3.92	13.1	157.8
130	20.84	36.80	3.44	9.0	156.8
140	20.24	36.75	3.39	15.3	155.9
150	19.35	36.63	3.36	24.2	138.6
160	18.85	36.56	3.32	18.5	131.5
170	17.95	36.41	3.27	14.2	125.9
180	17.26	36.33	3.12	15.2	121.9
190	16.88	36.27	3.16	15.0	119.8
200	16.49	36.21	3.10	16.5	116.4
210	15.56	36.07	2.99	13.1	108.9
220	15.19	36.01	2.98	14.6	105.8
230	14.67	35.93	2.96	19.1	98.3
240	14.10	35.83	2.92	19.2	87.1
250	13.93	35.81	2.90	14.5	83.7
260	13.69	35.77	2.89	13.4	82.8
270	13.60	35.76	2.87	13.5	82.8
280	13.48	35.73	2.87	12.0	82.5
290	13.20	35.69	2.86	11.0	77.5
300	12.77	35.63	2.83	8.6	72.9
350	10.43	35.28	2.78	2.8	57.5
400	9.02	35.10	2.77	4.8	41.2
450	8.17	35.01	2.81	1.3	22.4
500	6.97	34.94	3.00	2.4	8.7

Table 16: Same as Table 13 for the cruise ID and the station number indicated.

Cruise ID: ws0307. Station: 4					
Pressure	Temperature	Salinity	Oxygen	U speed	V speed
[db]	[deg. C]	[psu]	[ml/l]	[cm/s]	[cm/s]
1	26.83	36.09	4.50	NaN	NaN
10	26.67	36.09	4.50	12.2	198.3
20	26.60	36.08	4.50	12.3	198.5
30	26.45	36.08	4.51	12.6	199.2
40	26.38	36.16	4.49	13.2	200.2
50	25.82	36.28	4.38	10.0	201.5
60	25.57	36.31	4.27	6.2	198.3
70	25.10	36.17	4.44	5.4	196.1
80	25.15	36.34	4.24	6.0	192.2
90	24.67	36.64	3.86	9.2	182.3
100	23.60	36.75	3.73	8.6	167.3
110	22.96	36.83	4.09	6.8	157.5
120	21.71	36.65	4.07	7.0	149.0
130	21.31	36.71	3.71	8.5	142.2
140	20.97	36.74	3.54	12.1	141.1
150	20.45	36.77	3.36	13.4	140.7
160	19.36	36.64	3.32	10.2	128.5
170	18.95	36.60	3.38	6.1	123.8
180	18.63	36.56	3.37	7.1	121.4
190	17.84	36.43	3.37	7.2	119.3
200	17.48	36.37	3.26	3.7	118.1
210	16.89	36.28	3.17	2.9	120.0
220	16.61	36.23	3.07	1.7	120.5
230	16.36	36.20	3.11	1.1	121.0
240	16.03	36.15	3.24	2.7	119.9
250	15.71	36.10	3.24	5.0	118.7
260	15.47	36.06	3.21	5.2	117.4
270	15.04	35.99	3.18	6.2	115.7
280	14.89	35.96	3.16	8.6	114.2
290	14.70	35.93	3.14	11.3	113.8
300	14.47	35.89	3.11	15.0	111.3
350	11.68	35.45	2.83	4.5	82.0
400	10.43	35.26	2.75	6.3	76.7
450	9.54	35.14	2.74	6.8	63.9
500	8.63	35.04	2.74	7.8	53.5
550	7.94	34.99	2.82	3.3	35.6
600	7.63	34.97	2.87	2.2	29.9
650	6.69	34.93	3.06	10.0	4.6

Table 17: Same as Table 13 for the cruise ID and the station number indicated.

Cruise ID: ws0307. Station: 5					
Pressure	Temperature	Salinity	Oxygen	U speed	V speed
[db]	[deg. C]	[psu]	[ml/l]	[cm/s]	[cm/s]
1	26.84	36.06	4.47	NaN	NaN
10	26.74	36.06	4.49	15.4	156.9
20	26.73	36.06	4.50	15.2	157.0
30	26.72	36.06	4.50	14.3	157.6
40	26.36	36.04	4.52	12.9	158.4
50	26.00	36.07	4.53	10.3	160.2
60	25.71	36.08	4.55	3.4	163.1
70	25.44	36.09	4.57	3.4	158.4
80	25.39	36.13	4.58	4.3	158.2
90	25.22	36.15	4.53	6.3	159.3
100	25.27	36.29	4.43	7.9	155.5
110	25.05	36.76	3.80	12.5	145.4
120	23.16	36.49	4.30	12.4	132.6
130	22.55	36.59	4.61	5.7	121.5
140	21.92	36.51	4.57	-1.8	115.4
150	22.19	36.89	3.86	-4.2	116.0
160	21.27	36.84	3.42	-3.4	120.1
170	20.38	36.73	3.34	-0.0	118.3
180	19.66	36.68	3.28	4.5	115.7
190	19.07	36.62	3.36	9.3	109.4
200	18.51	36.55	3.53	11.3	104.7
210	18.24	36.52	3.52	6.7	100.7
220	17.89	36.46	3.49	5.9	98.1
230	17.49	36.39	3.45	6.0	95.0
240	17.11	36.33	3.41	8.3	93.4
250	16.75	36.27	3.38	7.8	91.4
260	16.59	36.25	3.35	6.2	91.3
270	16.31	36.20	3.33	4.9	91.7
280	16.14	36.17	3.30	4.6	90.6
290	15.74	36.11	3.26	6.0	85.1
300	15.34	36.04	3.23	7.1	79.7
350	14.12	35.83	3.08	8.5	71.1
400	11.84	35.47	2.85	3.6	57.3
450	11.22	35.37	2.81	-1.0	59.1
500	10.25	35.24	2.77	4.0	52.0
550	9.32	35.11	2.76	8.7	49.6
600	8.73	35.06	2.78	7.8	37.0
650	8.21	35.01	2.82	4.7	25.1
700	7.49	34.96	2.91	-3.3	18.6
750	NaN	NaN	NaN	-13.5	0.8

Table 18: Same as Table 13 for the cruise ID and the station number indicated.

Cruise ID: ws0307. Station: 6					
Pressure	Temperature	Salinity	Oxygen	U speed	V speed
[db]	[deg. C]	[psu]	[ml/l]	[cm/s]	[cm/s]
1	26.86	35.95	4.51	NaN	NaN
10	26.87	35.95	4.52	2.9	119.6
20	26.87	35.95	4.52	2.8	119.6
30	26.87	35.95	4.52	2.4	119.4
40	26.87	35.95	4.53	1.6	118.9
50	26.82	35.95	4.53	-3.4	118.6
60	26.50	35.95	4.53	-9.3	125.3
70	26.37	35.99	4.43	-7.6	130.6
80	26.08	36.00	4.40	-0.3	133.2
90	25.51	36.00	4.58	7.8	130.2
100	25.19	36.06	4.52	12.4	123.9
110	25.24	36.28	4.19	8.7	118.7
120	25.34	36.61	3.92	4.4	116.6
130	23.43	36.53	4.14	1.1	111.2
140	23.61	36.82	3.68	1.5	110.0
150	22.72	36.83	3.56	2.8	103.3
160	21.79	36.80	3.44	1.3	95.5
170	21.39	36.80	3.46	-2.7	90.6
180	20.86	36.77	3.45	-7.2	87.2
190	20.42	36.73	3.44	-10.7	85.6
200	20.04	36.69	3.45	-12.0	83.6
210	19.61	36.64	3.44	-11.0	81.7
220	19.42	36.62	3.46	-10.9	80.9
230	19.20	36.60	3.46	-9.1	79.9
240	18.86	36.55	3.46	-5.5	81.4
250	18.80	36.54	3.47	-2.9	79.0
260	18.47	36.50	3.46	4.2	78.8
270	18.15	36.46	3.47	8.5	80.7
280	17.72	36.40	3.46	9.2	79.2
290	17.28	36.33	3.46	9.8	70.0
300	16.95	36.28	3.43	9.3	64.6
350	15.10	35.99	3.20	-6.4	46.1
400	13.91	35.82	3.19	1.6	41.3
450	12.57	35.59	2.92	-4.4	35.5
500	11.21	35.39	2.83	-0.1	29.8
550	9.79	35.22	2.79	-6.9	27.0
600	9.44	35.17	2.78	-5.2	21.1
650	8.97	35.11	2.79	5.5	8.7

Table 19: Same as Table 13 for the cruise ID and the station number indicated.

Cruise ID: ws0307. Station: 7					
Pressure	Temperature	Salinity	Oxygen	U speed	V speed
[db]	[deg. C]	[psu]	[ml/l]	[cm/s]	[cm/s]
1	26.96	35.98	4.49	NaN	NaN
10	26.96	35.98	4.52	-9.8	91.2
20	26.97	35.98	4.52	-9.8	91.2
30	26.97	35.98	4.52	-9.8	91.1
40	26.97	35.98	4.51	-9.9	91.0
50	26.94	35.97	4.50	-10.2	92.0
60	26.82	35.97	4.51	-9.2	97.0
70	26.61	35.96	4.46	-6.4	103.7
80	26.36	35.99	4.50	-5.4	105.5
90	26.03	36.04	4.45	-7.9	103.7
100	25.93	36.03	4.47	-7.6	103.6
110	25.78	36.17	4.40	-3.6	99.6
120	25.29	36.63	3.84	0.1	93.4
130	24.37	36.78	3.74	-3.4	83.5
140	23.73	36.83	3.64	-10.9	81.4
150	23.32	36.87	3.60	-11.9	82.5
160	22.97	36.88	3.58	-5.7	83.4
170	22.52	36.88	3.54	0.1	80.4
180	21.72	36.85	3.47	2.8	69.9
190	21.16	36.81	3.43	1.9	64.7
200	20.87	36.80	3.35	1.3	61.2
210	20.71	36.78	3.35	-3.5	61.9
220	20.42	36.75	3.38	-10.2	62.4
230	20.01	36.71	3.43	-9.7	61.7
240	19.74	36.68	3.41	-4.8	62.0
250	19.27	36.63	3.46	-4.9	64.7
260	19.25	36.62	3.45	-2.1	65.6
270	18.68	36.56	3.52	2.9	63.0
280	18.42	36.53	3.53	5.3	61.4
290	17.85	36.44	3.46	6.1	57.8
300	17.60	36.40	3.43	4.9	53.3
350	16.70	36.27	3.47	2.7	47.3
400	15.65	36.12	3.47	-7.7	41.9
450	13.89	35.83	3.11	-7.8	27.6
500	12.75	35.64	2.94	-11.0	20.2
550	11.16	35.42	2.84	-4.5	11.7
600	10.25	35.30	2.79	-1.1	7.3

Table 20: Same as Table 13 for the cruise ID and the station number indicated.

Cruise ID: ws0307. Station: 8					
Pressure	Temperature	Salinity	Oxygen	U speed	V speed
[db]	[deg. C]	[psu]	[ml/l]	[cm/s]	[cm/s]
1	27.04	35.98	4.49	NaN	NaN
10	27.04	35.98	4.50	-11.8	57.4
20	27.04	35.98	4.50	-11.8	57.4
30	27.05	35.98	4.51	-12.1	57.2
40	27.04	35.98	4.51	-13.9	58.3
50	27.03	35.97	4.51	-17.9	58.5
60	27.00	35.97	4.50	-23.5	59.3
70	26.86	35.97	4.50	-27.2	62.8
80	26.63	35.96	4.46	-26.7	67.5
90	26.46	35.98	4.40	-24.4	70.7
100	26.36	36.07	4.33	-15.5	72.9
110	26.09	36.36	4.04	-9.1	71.3
120	26.03	36.42	3.96	-11.4	69.7
130	25.48	36.63	3.85	-10.5	70.9
140	24.15	36.74	3.82	-8.5	67.7
150	23.94	36.79	3.83	-10.0	65.4
160	23.50	36.86	3.66	-18.0	65.0
170	23.31	36.88	3.60	-19.5	62.0
180	22.70	36.88	3.54	-18.0	60.0
190	22.09	36.89	3.50	-17.8	63.4
200	21.73	36.87	3.46	-11.0	66.5
210	21.41	36.85	3.43	-7.8	69.8
220	21.02	36.82	3.41	-7.9	67.0
230	20.39	36.77	3.46	-11.5	58.0
240	19.56	36.70	3.60	-14.1	54.1
250	19.40	36.68	3.82	-16.5	54.9
260	19.21	36.66	3.86	-17.2	56.8
270	18.91	36.62	3.61	-20.3	56.9
280	18.83	36.61	3.55	-21.2	58.1
290	18.65	36.58	3.61	-17.9	60.9
300	18.38	36.55	3.73	-17.3	59.7
350	17.43	36.42	3.74	-13.7	53.4
400	15.84	36.16	3.36	-14.7	29.3
450	15.19	36.05	3.23	-9.4	22.7

Table 21: Same as Table 13 for the cruise ID and the station number indicated.

Cruise ID: ws0320. Station: 0					
Pressure	Temperature	Salinity	Oxygen	U speed	V speed
[db]	[deg. C]	[psu]	[ml/l]	[cm/s]	[cm/s]
1	29.62	36.03	4.02	NaN	NaN
10	29.06	36.08	4.05	-11.4	216.7
20	28.88	36.20	4.07	-11.1	216.7
30	28.18	36.17	4.16	-9.7	215.8
40	25.88	36.28	4.52	-7.3	213.6
50	20.00	36.16	4.33	4.3	173.2
60	17.40	35.95	3.92	6.5	131.6
70	14.61	35.74	3.44	5.0	91.8
80	12.26	35.53	3.05	3.6	59.2
90	10.18	35.30	2.87	4.0	36.2
100	8.68	35.11	2.74	-0.6	21.5
110	8.27	35.06	2.76	-5.4	12.5
120	8.09	35.04	2.75	-9.5	8.3
130	7.86	35.02	2.77	-10.5	4.4
140	NaN	NaN	NaN	-8.4	4.3

Table 22: Same as Table 13 for the cruise ID and the station number indicated.

Cruise ID: ws0320. Station: 1					
Pressure	Temperature	Salinity	Oxygen	U speed	V speed
[db]	[deg. C]	[psu]	[ml/l]	[cm/s]	[cm/s]
1	28.82	36.27	4.05	NaN	NaN
10	28.71	36.27	4.07	0.8	221.2
20	28.67	36.27	4.08	0.8	221.1
30	28.60	36.26	4.08	0.7	221.0
40	28.15	36.28	4.16	-1.0	222.4
50	26.21	36.47	4.25	-2.2	225.3
60	24.07	36.39	4.58	3.1	211.9
70	22.06	36.42	4.55	10.0	198.3
80	20.68	36.37	4.57	16.5	184.1
90	19.76	36.31	4.23	14.8	167.5
100	18.18	36.20	3.86	12.1	137.9
110	16.11	36.07	3.20	16.1	108.9
120	14.54	35.85	3.10	14.2	85.8
130	13.30	35.69	3.05	8.5	66.2
140	12.07	35.53	3.02	5.1	52.0
150	11.04	35.40	2.95	0.3	38.7
160	9.98	35.27	2.89	-2.8	24.4
170	9.02	35.16	2.83	-4.6	14.5
180	8.32	35.07	2.77	-7.2	10.4
190	8.21	35.05	2.76	-11.0	11.3
200	7.99	35.03	2.77	-10.2	10.7
210	7.84	35.01	2.78	-10.8	5.7
220	7.74	35.00	2.78	-10.1	5.1
230	7.58	34.98	2.79	-11.7	8.8
240	7.52	34.97	2.78	-9.5	22.1
250	7.52	34.97	2.78	NaN	NaN

Table 23: Same as Table 13 for the cruise ID and the station number indicated.

Cruise ID: ws0320. Station: 2					
Pressure	Temperature	Salinity	Oxygen	U speed	V speed
[db]	[deg. C]	[psu]	[ml/l]	[cm/s]	[cm/s]
1	28.76	36.19	4.03	NaN	NaN
10	28.70	36.20	4.05	-4.2	222.1
20	28.59	36.20	4.06	-4.1	222.0
30	28.50	36.27	4.07	-3.8	221.7
40	27.42	36.34	4.13	-2.6	220.9
50	26.86	36.41	4.09	8.3	214.3
60	26.20	36.47	4.10	12.8	210.6
70	25.16	36.56	4.04	15.2	203.2
80	23.90	36.59	3.80	14.2	189.5
90	21.76	36.30	4.75	8.0	181.1
100	20.91	36.29	4.66	1.4	175.8
110	20.43	36.33	4.59	4.5	171.8
120	19.88	36.41	4.19	5.2	160.7
130	19.13	36.39	3.51	7.4	148.9
140	18.76	36.47	3.18	7.7	143.7
150	18.18	36.43	3.02	9.9	139.6
160	17.22	36.31	3.00	15.1	128.8
170	16.55	36.23	2.99	15.3	116.0
180	15.66	36.09	2.96	13.5	104.6
190	14.42	35.87	2.92	12.8	95.4
200	13.21	35.69	2.88	11.8	88.3
210	12.23	35.55	2.83	4.9	75.8
220	11.31	35.43	2.77	2.9	67.1
230	10.83	35.36	2.74	4.6	58.2
240	10.36	35.30	2.71	5.2	48.3
250	10.04	35.25	2.70	5.3	42.5
260	9.57	35.20	2.70	0.2	32.8
270	9.33	35.17	2.71	-1.7	27.3
280	8.49	35.09	2.77	-1.6	20.8
290	8.38	35.08	2.79	-1.9	17.8
300	8.34	35.08	2.80	-4.1	15.6
350	6.99	34.95	2.92	-2.0	10.6

Table 24: Same as Table 13 for the cruise ID and the station number indicated.

Cruise ID: ws0320. Station: 3					
Pressure	Temperature	Salinity	Oxygen	U speed	V speed
[db]	[deg. C]	[psu]	[ml/l]	[cm/s]	[cm/s]
1	28.84	36.21	4.01	NaN	NaN
10	28.80	36.20	4.02	-5.5	207.6
20	28.70	36.20	4.04	-5.5	207.7
30	28.53	36.20	4.05	-5.7	207.7
40	27.71	36.26	4.14	-5.8	207.7
50	27.32	36.34	4.16	-8.8	203.6
60	26.91	36.37	4.08	-4.0	203.9
70	26.45	36.45	4.09	-2.4	199.6
80	25.77	36.51	3.98	2.0	192.2
90	25.07	36.65	3.79	10.3	183.8
100	23.93	36.68	3.61	9.8	177.0
110	23.38	36.78	3.72	-0.5	176.8
120	23.16	36.90	3.43	2.2	177.9
130	21.93	36.78	3.39	10.6	171.5
140	20.81	36.67	3.38	17.0	160.0
150	19.30	36.33	3.67	16.4	151.2
160	19.15	36.42	3.54	10.8	144.4
170	18.69	36.45	3.14	5.9	140.2
180	18.07	36.41	2.97	3.6	139.3
190	17.66	36.38	2.97	6.6	135.6
200	17.12	36.30	2.95	11.9	124.7
210	16.65	36.24	2.93	14.3	115.1
220	16.05	36.15	2.88	11.4	111.3
230	15.57	36.08	2.90	8.0	108.4
240	15.21	36.02	2.89	7.1	106.5
250	14.91	35.98	2.88	1.6	106.9
260	14.54	35.92	2.88	-0.9	110.3
270	14.30	35.88	2.86	-2.3	111.9
280	13.76	35.79	2.82	2.2	109.6
290	13.25	35.71	2.77	8.6	101.4
300	12.80	35.64	2.76	11.9	88.2
350	10.17	35.26	2.68	6.0	56.6
400	8.16	35.01	2.67	0.7	38.6
450	7.73	35.00	2.80	-6.2	20.5
500	6.64	34.92	2.95	1.3	4.1

Table 25: Same as Table 13 for the cruise ID and the station number indicated.

Cruise ID: ws0320. Station: 4					
Pressure	Temperature	Salinity	Oxygen	U speed	V speed
[db]	[deg. C]	[psu]	[ml/l]	[cm/s]	[cm/s]
1	28.89	36.20	4.04	NaN	NaN
10	28.85	36.20	4.06	-2.7	189.5
20	28.79	36.22	4.07	-2.7	189.6
30	28.30	36.20	4.09	-2.7	190.1
40	28.08	36.23	4.16	-2.8	191.7
50	27.98	36.27	4.16	-5.5	194.5
60	27.62	36.27	4.16	-6.1	192.4
70	27.06	36.26	4.19	-3.9	191.3
80	26.64	36.29	4.13	-2.6	185.4
90	25.94	36.52	3.99	-6.9	183.0
100	25.48	36.56	3.79	-5.0	186.1
110	24.86	36.71	3.68	-1.8	176.3
120	23.86	36.82	3.55	-3.2	166.9
130	22.29	36.82	3.44	-4.3	160.5
140	21.21	36.66	3.57	-2.8	154.9
150	20.73	36.79	3.34	-1.4	147.6
160	19.91	36.72	3.31	0.0	138.3
170	19.35	36.66	3.32	0.6	131.2
180	18.84	36.61	3.36	1.0	127.0
190	18.56	36.57	3.41	3.0	123.6
200	18.16	36.51	3.42	4.1	122.9
210	17.73	36.44	3.34	4.0	125.3
220	17.59	36.42	3.35	8.5	125.8
230	16.81	36.28	3.14	12.0	118.8
240	16.43	36.21	3.00	13.0	108.2
250	15.99	36.14	2.92	7.6	98.8
260	15.40	36.05	2.88	4.9	97.2
270	14.65	35.93	2.79	3.9	95.2
280	14.35	35.88	2.79	2.1	94.1
290	13.93	35.82	2.83	0.6	92.6
300	13.70	35.78	2.85	1.6	92.2
350	11.99	35.50	2.74	7.3	86.4
400	10.96	35.34	2.68	9.2	83.7
450	9.14	35.11	2.63	1.3	75.0
500	7.82	34.97	2.70	4.5	49.4
550	7.37	34.94	2.77	3.5	35.9
600	6.88	34.94	2.95	-0.5	14.7

Table 26: Same as Table 13 for the cruise ID and the station number indicated.

Cruise ID: ws0320. Station: 5					
Pressure	Temperature	Salinity	Oxygen	U speed	V speed
[db]	[deg. C]	[psu]	[ml/l]	[cm/s]	[cm/s]
1	28.89	36.14	4.06	NaN	NaN
10	28.97	36.25	4.03	2.0	158.0
20	28.92	36.24	4.04	2.0	158.1
30	28.86	36.24	4.05	1.8	158.6
40	28.22	36.24	4.11	1.4	159.6
50	28.10	36.26	4.15	-0.9	167.5
60	27.92	36.28	4.15	2.2	167.9
70	27.55	36.31	4.12	4.9	166.6
80	27.03	36.37	4.09	-0.9	164.6
90	26.40	36.43	3.93	-5.5	161.4
100	25.88	36.51	3.87	-6.1	158.6
110	25.36	36.64	3.73	-3.8	151.0
120	24.32	36.74	3.62	-5.7	141.7
130	24.00	36.88	3.58	-9.8	133.0
140	23.36	36.88	3.51	-13.2	126.7
150	22.74	36.86	3.43	-17.8	124.8
160	22.23	36.85	3.46	-15.8	121.7
170	21.33	36.75	3.46	-8.2	118.5
180	20.91	36.81	3.42	-3.9	115.4
190	20.19	36.74	3.33	-1.8	111.3
200	19.69	36.70	3.34	-4.2	106.8
210	19.24	36.65	3.37	-9.3	104.7
220	18.80	36.60	3.40	-13.2	103.7
230	18.60	36.57	3.41	-10.8	103.1
240	18.25	36.52	3.41	-10.4	102.2
250	17.76	36.44	3.41	-6.0	100.2
260	17.36	36.38	3.38	-0.0	99.6
270	17.02	36.32	3.34	-0.6	98.5
280	16.68	36.27	3.35	1.6	100.6
290	16.32	36.21	3.30	2.0	98.4
300	15.96	36.15	3.26	2.0	94.9
350	13.76	35.78	2.94	8.7	85.2
400	12.48	35.58	2.80	0.1	78.8
450	11.15	35.37	2.69	1.9	64.6
500	10.04	35.22	2.65	7.5	65.5
550	8.59	35.04	2.66	11.6	45.8
600	7.45	34.96	2.83	7.8	27.9
650	6.94	34.93	2.93	0.9	19.8
700	6.92	34.92	2.94	3.3	13.6
750	NaN	NaN	NaN	-11.9	4.4

Table 27: Same as Table 13 for the cruise ID and the station number indicated.

Cruise ID: ws0320. Station: 6					
Pressure	Temperature	Salinity	Oxygen	U speed	V speed
[db]	[deg. C]	[psu]	[ml/l]	[cm/s]	[cm/s]
1	29.05	36.27	3.99	NaN	NaN
10	29.05	36.27	3.98	-6.9	131.2
20	29.04	36.26	3.99	-6.9	131.3
30	28.82	36.25	4.02	-7.0	131.5
40	28.48	36.24	4.08	-7.0	132.1
50	27.54	36.24	4.12	-6.9	136.2
60	27.14	36.29	4.09	-10.7	133.8
70	27.03	36.30	4.03	-5.6	129.4
80	26.72	36.33	3.97	-2.0	129.3
90	26.40	36.33	3.96	-0.1	130.6
100	26.09	36.42	3.85	7.2	131.3
110	25.85	36.47	3.81	10.2	129.7
120	25.41	36.58	3.74	0.6	123.5
130	25.00	36.68	3.63	-5.5	120.5
140	24.14	36.79	3.55	-3.2	116.2
150	24.07	36.81	3.53	-3.4	110.7
160	23.63	36.86	3.48	-8.2	109.2
170	22.31	36.88	3.42	-10.0	108.7
180	22.18	36.88	3.38	-5.1	106.1
190	21.65	36.87	3.36	-4.5	95.3
200	20.72	36.81	3.33	-7.7	87.5
210	19.93	36.73	3.35	-9.1	84.8
220	19.62	36.69	3.35	-9.0	78.8
230	19.42	36.67	3.37	-8.0	73.5
240	18.77	36.59	3.41	-8.5	73.4
250	18.45	36.55	3.42	-7.6	72.6
260	18.27	36.52	3.43	-7.7	69.3
270	17.89	36.46	3.41	-7.5	69.5
280	17.53	36.41	3.41	-6.4	71.9
290	17.17	36.35	3.37	-6.8	72.9
300	16.86	36.30	3.36	-8.0	72.4
350	15.66	36.13	3.56	-1.6	63.5
400	13.60	35.76	2.97	4.0	50.8
450	12.15	35.53	2.78	5.4	48.4
500	11.21	35.38	2.72	3.5	36.0
550	10.90	35.33	2.69	-5.0	29.8
600	10.08	35.22	2.66	-7.8	12.0
650	NaN	NaN	NaN	0.3	-2.3

Table 28: Same as Table 13 for the cruise ID and the station number indicated.

Cruise ID: ws0320. Station: 7					
Pressure	Temperature	Salinity	Oxygen	U speed	V speed
[db]	[deg. C]	[psu]	[ml/l]	[cm/s]	[cm/s]
1	28.89	36.28	4.02	NaN	NaN
10	28.89	36.29	4.02	-14.5	94.1
20	28.76	36.27	4.04	-14.4	94.0
30	28.46	36.23	4.08	-14.2	93.8
40	28.31	36.23	4.10	-14.0	93.5
50	27.92	36.23	4.11	-12.4	91.6
60	27.55	36.30	4.09	-5.5	92.9
70	27.38	36.37	4.05	-6.0	87.2
80	27.05	36.36	4.02	-3.1	85.5
90	26.58	36.34	3.98	0.4	88.0
100	26.50	36.38	3.91	2.3	89.0
110	26.25	36.43	3.83	-1.4	89.6
120	25.88	36.48	3.80	-4.0	91.1
130	25.76	36.54	3.77	-7.6	89.8
140	25.19	36.62	3.68	-9.5	86.9
150	24.35	36.78	3.57	-5.1	83.0
160	23.80	36.85	3.51	-1.4	75.9
170	23.62	36.87	3.49	-6.2	73.4
180	22.38	36.89	3.44	-12.6	74.4
190	21.32	36.84	3.38	-12.3	71.6
200	21.01	36.83	3.35	-12.5	66.0
210	20.78	36.82	3.34	-13.8	67.6
220	20.16	36.75	3.36	-13.0	71.2
230	19.83	36.72	3.35	-10.5	73.3
240	19.55	36.69	3.37	-9.5	78.9
250	19.03	36.62	3.39	-13.4	82.8
260	18.71	36.59	3.48	-16.5	86.9
270	18.63	36.58	3.58	-16.1	85.5
280	18.41	36.54	3.49	-15.0	79.4
290	18.16	36.50	3.47	-14.9	76.7
300	18.00	36.48	3.50	-13.6	78.0
350	16.33	36.21	3.33	-7.6	54.6
400	15.54	36.08	3.23	-2.2	41.6
450	14.32	35.87	3.05	1.5	27.7
500	12.79	35.62	2.89	0.0	7.4
550	12.15	35.54	2.79	-3.3	5.4
600	NaN	NaN	NaN	-9.0	-1.3

Table 29: Same as Table 13 for the cruise ID and the station number indicated.

Cruise ID: ws0320. Station: 8					
Pressure	Temperature	Salinity	Oxygen	U speed	V speed
[db]	[deg. C]	[psu]	[ml/l]	[cm/s]	[cm/s]
1	28.76	36.27	4.06	NaN	NaN
10	28.77	36.27	4.06	-11.1	40.0
20	28.77	36.27	4.07	-11.1	40.0
30	28.77	36.27	4.07	-11.5	40.0
40	28.73	36.26	4.07	-12.9	39.3
50	28.54	36.25	4.10	-21.0	33.6
60	27.48	36.33	4.08	-15.2	35.5
70	27.46	36.38	4.05	-0.7	41.0
80	27.23	36.40	4.05	10.4	43.8
90	26.66	36.35	3.95	6.8	43.6
100	26.41	36.40	3.92	-6.4	47.3
110	26.22	36.45	4.06	-16.3	54.4
120	25.80	36.53	4.17	-12.4	62.1
130	25.34	36.60	4.17	-11.3	62.6
140	25.12	36.64	4.17	-14.8	61.5
150	24.61	36.69	4.11	-25.4	63.1
160	24.05	36.73	4.07	-27.4	67.1
170	22.71	36.79	4.06	-18.4	68.1
180	22.02	36.81	4.13	-18.4	66.7
190	21.14	36.79	4.14	-28.7	61.2
200	20.70	36.77	4.16	-33.9	60.1
210	20.40	36.75	4.16	-31.8	61.2
220	19.78	36.71	4.09	-27.9	57.8
230	19.73	36.70	4.08	-26.9	57.3
240	19.66	36.70	4.08	-26.1	58.6
250	19.30	36.67	4.08	-24.1	58.2
260	19.07	36.63	3.69	-19.7	56.0
270	19.00	36.63	3.75	-16.7	53.1
280	18.95	36.62	3.79	-9.1	52.6
290	18.75	36.60	3.76	-8.6	52.1
300	18.65	36.59	3.93	-9.9	50.7
350	17.71	36.47	3.97	-6.1	44.0
400	16.33	36.26	3.84	-2.1	24.5
450	15.62	36.14	3.69	-2.2	5.4

Table 30: Same as Table 13 for the cruise ID and the station number indicated.

Cruise ID: ws0327. Station: 0					
Pressure	Temperature	Salinity	Oxygen	U speed	V speed
[db]	[deg. C]	[psu]	[ml/l]	[cm/s]	[cm/s]
1	28.94	36.01	4.36	NaN	NaN
10	28.95	36.02	4.37	3.3	74.4
20	28.95	36.02	4.37	3.2	74.1
30	29.01	36.04	4.36	3.1	73.0
40	29.12	36.11	4.37	3.1	71.6
50	29.01	36.24	4.38	5.9	71.2
60	28.80	36.29	4.40	4.4	69.4
70	28.36	36.31	4.45	2.8	64.8
80	26.22	36.45	4.53	-0.7	60.4
90	25.79	36.49	4.47	-4.5	53.0
100	25.15	36.49	4.57	-4.4	41.8
110	23.57	36.43	4.40	-7.5	33.8
120	22.58	36.38	4.17	-7.7	21.3
130	21.25	36.42	3.94	-4.1	17.7
140	NaN	NaN	NaN	-0.6	15.5

Table 31: Same as Table 13 for the cruise ID and the station number indicated.

Cruise ID: ws0327. Station: 1					
Pressure	Temperature	Salinity	Oxygen	U speed	V speed
[db]	[deg. C]	[psu]	[ml/l]	[cm/s]	[cm/s]
1	29.25	36.13	4.34	NaN	NaN
10	29.26	36.13	4.35	-3.0	77.9
20	29.26	36.13	4.35	-2.7	78.0
30	29.26	36.13	4.35	-1.8	78.2
40	29.25	36.13	4.35	0.0	78.5
50	29.12	36.13	4.37	6.8	74.4
60	28.85	36.22	4.41	8.6	72.2
70	28.40	36.26	4.43	4.1	78.4
80	26.84	36.33	4.57	5.2	84.1
90	25.93	36.45	4.59	-1.7	75.1
100	25.19	36.50	4.54	-7.5	67.2
110	24.19	36.55	4.55	-6.4	65.5
120	23.36	36.57	4.24	-8.3	61.8
130	22.79	36.59	4.02	-10.6	62.0
140	22.12	36.54	4.03	-11.5	60.6
150	21.21	36.42	3.86	-8.3	59.5
160	20.59	36.43	3.80	-4.6	61.2
170	20.19	36.47	3.57	-0.2	66.1
180	19.45	36.49	3.37	3.3	70.6
190	18.68	36.41	3.35	3.3	66.0
200	17.99	36.36	3.28	4.3	55.3
210	17.19	36.24	3.21	8.0	42.7
220	16.49	36.12	3.19	7.5	30.3
230	15.76	36.03	3.13	0.6	24.0
240	NaN	NaN	NaN	-5.8	17.5
250	NaN	NaN	NaN	-5.4	10.4

Table 32: Same as Table 13 for the cruise ID and the station number indicated.

Cruise ID: ws0327. Station: 2					
Pressure	Temperature	Salinity	Oxygen	U speed	V speed
[db]	[deg. C]	[psu]	[ml/l]	[cm/s]	[cm/s]
1	29.07	36.06	4.33	NaN	NaN
10	29.07	36.06	4.36	-5.9	105.6
20	29.07	36.06	4.36	-5.8	105.6
30	29.08	36.06	4.36	-5.5	105.5
40	29.09	36.06	4.36	-5.0	105.3
50	29.06	36.17	4.37	0.9	95.8
60	28.89	36.22	4.41	-4.4	95.8
70	28.01	36.31	4.45	-5.6	96.6
80	27.26	36.38	4.36	-0.3	97.6
90	26.64	36.43	4.28	0.8	99.9
100	25.48	36.45	4.56	-1.9	98.8
110	24.39	36.53	4.54	1.8	91.5
120	24.01	36.64	4.17	1.9	92.5
130	23.68	36.71	3.96	0.2	91.4
140	22.74	36.66	3.94	1.4	85.4
150	21.80	36.68	3.71	3.0	87.6
160	21.31	36.66	3.69	1.6	91.6
170	20.93	36.64	3.60	-2.8	91.2
180	20.41	36.63	3.47	-3.6	92.6
190	19.45	36.55	3.30	-2.0	99.8
200	18.61	36.46	3.23	-3.2	104.1
210	18.01	36.40	3.19	-0.4	100.7
220	17.86	36.39	3.18	-0.3	96.9
230	17.47	36.34	3.22	-0.2	93.3
240	17.29	36.32	3.24	0.5	90.1
250	16.80	36.25	3.26	-0.6	91.9
260	16.43	36.20	3.25	-0.3	90.7
270	15.20	36.00	3.23	1.2	82.2
280	13.94	35.81	3.10	6.2	71.8
290	13.47	35.74	3.05	10.1	68.5
300	13.40	35.73	3.05	10.2	67.5
350	9.50	35.19	2.90	1.9	16.1

Table 33: Same as Table 13 for the cruise ID and the station number indicated.

Cruise ID: ws0327. Station: 3					
Pressure	Temperature	Salinity	Oxygen	U speed	V speed
[db]	[deg. C]	[psu]	[ml/l]	[cm/s]	[cm/s]
1	29.34	36.15	4.32	NaN	NaN
10	29.34	36.15	4.34	-0.1	111.4
20	29.34	36.15	4.33	0.1	111.4
30	29.34	36.15	4.34	1.1	111.2
40	29.28	36.15	4.34	2.5	110.8
50	28.46	36.19	4.45	5.2	110.0
60	28.24	36.22	4.41	11.5	106.1
70	28.12	36.24	4.40	10.7	106.4
80	26.53	36.25	4.50	4.4	104.6
90	26.45	36.45	4.22	-2.6	106.7
100	24.98	36.61	4.28	-5.6	110.6
110	24.63	36.77	3.79	-6.0	109.4
120	23.97	36.79	3.78	-11.6	108.7
130	23.69	36.85	3.73	-13.4	104.8
140	23.27	36.89	3.72	-13.6	102.2
150	22.87	36.90	3.78	-13.7	102.8
160	22.26	36.90	3.98	-11.1	102.9
170	21.49	36.86	4.07	-8.0	101.9
180	20.65	36.80	4.04	0.3	96.8
190	20.01	36.74	4.04	2.0	96.8
200	19.58	36.69	4.07	-0.2	102.4
210	18.94	36.60	3.85	-4.4	104.6
220	18.44	36.54	3.91	-3.2	104.7
230	18.23	36.51	3.94	-1.3	107.1
240	17.87	36.46	3.92	0.7	108.9
250	17.55	36.39	3.63	1.5	109.0
260	17.14	36.36	3.83	3.7	106.8
270	16.51	36.27	3.88	1.7	105.5
280	16.44	36.26	3.97	0.4	105.0
290	16.13	36.21	3.91	-1.7	103.8
300	16.08	36.20	3.91	-1.6	102.3
350	13.63	35.74	3.05	8.2	93.9
400	12.20	35.53	2.96	8.9	69.7
450	9.51	35.20	2.94	3.6	30.4
500	6.86	34.93	3.18	0.2	8.6

Table 34: Same as Table 13 for the cruise ID and the station number indicated.

Cruise ID: ws0327. Station: 4					
Pressure	Temperature	Salinity	Oxygen	U speed	V speed
[db]	[deg. C]	[psu]	[ml/l]	[cm/s]	[cm/s]
1	29.31	36.22	4.33	NaN	NaN
10	29.32	36.22	4.36	12.7	102.7
20	29.32	36.22	4.35	12.8	102.7
30	29.32	36.22	4.37	13.0	102.8
40	29.18	36.22	4.36	13.2	103.0
50	28.86	36.23	4.38	13.6	103.3
60	28.23	36.22	4.44	17.0	105.2
70	27.84	36.29	4.36	15.5	105.1
80	27.20	36.34	4.25	7.7	106.5
90	26.21	36.51	4.09	1.7	108.5
100	25.38	36.68	3.94	-2.3	109.9
110	24.63	36.76	3.84	-5.4	112.8
120	24.07	36.85	3.84	-10.8	112.6
130	23.61	36.89	3.74	-16.1	111.1
140	23.22	36.90	3.74	-17.2	111.6
150	22.62	36.89	3.80	-16.3	114.5
160	22.04	36.87	3.68	-15.3	113.9
170	20.92	36.80	3.87	-20.1	111.9
180	20.54	36.77	3.58	-24.8	113.2
190	20.23	36.74	3.53	-21.7	116.7
200	20.03	36.74	3.69	-16.1	114.8
210	19.58	36.69	4.08	-13.0	110.2
220	18.98	36.59	3.63	-9.1	108.2
230	18.52	36.53	3.59	-3.7	108.8
240	18.16	36.48	3.60	2.4	109.1
250	17.89	36.44	3.63	2.8	106.9
260	17.52	36.40	3.73	1.9	102.7
270	17.09	36.32	3.64	3.3	99.1
280	16.77	36.30	3.67	1.1	94.0
290	16.60	36.27	3.86	-3.0	92.2
300	16.18	36.21	3.84	-3.2	90.1
350	15.08	36.04	3.77	-2.6	90.1
400	12.95	35.63	2.99	4.6	85.8
450	11.74	35.44	2.90	14.2	77.6
500	9.79	35.20	2.84	12.9	54.9
550	7.52	34.97	3.02	3.1	36.9
600	6.71	34.91	3.15	15.7	21.6

Table 35: Same as Table 13 for the cruise ID and the station number indicated.

Cruise ID: ws0327. Station: 5					
Pressure	Temperature	Salinity	Oxygen	U speed	V speed
[db]	[deg. C]	[psu]	[ml/l]	[cm/s]	[cm/s]
1	29.27	36.18	4.32	NaN	NaN
10	29.27	36.19	4.34	4.8	126.7
20	29.27	36.19	4.34	4.8	126.7
30	29.27	36.19	4.35	5.2	126.9
40	28.95	36.24	4.38	5.6	127.1
50	28.81	36.24	4.37	6.1	127.3
60	28.40	36.25	4.38	5.7	129.0
70	27.89	36.27	4.36	-0.2	132.8
80	27.23	36.37	4.37	-2.3	142.2
90	26.25	36.49	4.16	-8.0	143.3
100	25.70	36.59	4.02	-5.4	140.2
110	25.08	36.70	3.98	-11.2	130.4
120	24.60	36.80	4.05	-20.6	125.4
130	24.10	36.83	4.14	-23.8	123.0
140	23.64	36.89	4.19	-17.5	120.8
150	23.37	36.92	4.20	-11.3	120.7
160	22.80	36.95	4.20	-9.8	121.4
170	22.39	36.95	4.17	-7.6	116.1
180	22.05	36.96	4.21	-5.6	113.5
190	21.61	36.93	4.19	-4.4	112.8
200	20.54	36.81	3.97	-3.4	108.1
210	20.29	36.79	4.08	-5.7	99.3
220	19.92	36.73	3.96	-10.7	96.2
230	19.53	36.70	4.10	-9.1	97.1
240	19.15	36.66	4.14	-10.4	96.2
250	18.84	36.62	4.15	-10.1	94.1
260	18.57	36.59	4.23	-7.0	90.9
270	18.33	36.56	4.23	-7.9	90.9
280	18.09	36.52	4.21	-7.8	91.2
290	17.54	36.40	3.81	-6.7	89.2
300	17.25	36.35	3.62	-8.0	90.1
350	15.95	36.17	3.89	1.2	78.5
400	14.23	35.88	3.47	8.9	73.3
450	12.22	35.53	2.92	4.6	69.8
500	11.15	35.36	2.83	6.0	69.1
550	9.50	35.13	2.76	-2.6	61.1
600	8.32	35.01	2.81	-1.1	53.7
650	7.12	34.91	2.99	0.8	34.9
700	6.68	34.91	3.15	-4.5	27.8
750	NaN	NaN	NaN	-4.3	22.4

Table 36: Same as Table 13 for the cruise ID and the station number indicated.

Cruise ID: ws0327. Station: 6					
Pressure	Temperature	Salinity	Oxygen	U speed	V speed
[db]	[deg. C]	[psu]	[ml/l]	[cm/s]	[cm/s]
1	29.33	36.14	4.33	NaN	NaN
10	29.33	36.15	4.35	11.5	86.4
20	29.14	36.17	4.39	11.5	86.5
30	29.11	36.17	4.39	11.1	87.0
40	28.66	36.18	4.43	10.4	87.8
50	28.09	36.25	4.42	9.4	88.7
60	27.91	36.27	4.35	-5.5	100.6
70	27.29	36.33	4.24	-14.0	98.5
80	27.03	36.36	4.18	-13.4	96.7
90	26.52	36.40	4.14	-1.2	96.7
100	26.04	36.47	4.03	-0.8	96.7
110	25.15	36.63	3.99	-8.8	98.5
120	24.54	36.75	4.01	-9.0	96.9
130	24.09	36.81	4.06	-6.4	93.5
140	23.71	36.87	4.13	-3.5	91.6
150	23.46	36.89	4.13	-1.4	86.3
160	22.91	36.93	4.13	2.2	82.6
170	22.59	36.94	4.14	3.8	78.9
180	22.13	36.95	4.15	3.1	75.5
190	21.85	36.93	4.14	1.2	76.6
200	21.18	36.88	4.10	-2.3	81.7
210	20.88	36.84	4.06	-1.6	80.9
220	20.38	36.79	3.92	1.4	82.4
230	19.73	36.71	4.04	0.5	82.6
240	19.56	36.68	3.95	-2.9	82.8
250	19.14	36.63	3.86	-6.0	80.5
260	18.93	36.62	4.05	-4.9	81.4
270	18.80	36.60	4.10	-2.5	81.1
280	18.35	36.50	3.71	-3.2	77.3
290	18.04	36.46	3.60	-8.1	73.8
300	17.83	36.43	3.59	-8.0	71.6
350	16.73	36.29	3.81	-6.4	66.2
400	15.17	36.04	3.69	-1.1	54.8
450	13.66	35.77	3.30	0.5	44.1
500	11.59	35.42	2.89	0.5	34.9
550	9.85	35.18	2.78	0.1	30.6
600	9.05	35.09	2.79	4.9	21.1
650	8.24	35.03	2.93	-10.6	12.5

Table 37: Same as Table 13 for the cruise ID and the station number indicated.

Cruise ID: ws0327. Station: 7					
Pressure	Temperature	Salinity	Oxygen	U speed	V speed
[db]	[deg. C]	[psu]	[ml/l]	[cm/s]	[cm/s]
1	29.08	36.22	4.36	NaN	NaN
10	29.08	36.22	4.37	2.5	70.9
20	29.08	36.23	4.38	2.5	71.0
30	29.08	36.24	4.37	2.2	71.2
40	29.07	36.24	4.37	1.8	71.4
50	28.95	36.25	4.39	1.1	71.8
60	28.58	36.26	4.42	-7.9	70.0
70	28.09	36.27	4.41	-8.5	68.1
80	27.59	36.28	4.39	-8.0	68.5
90	27.42	36.38	4.34	-6.9	68.5
100	26.59	36.47	4.21	-8.0	78.8
110	25.33	36.62	4.03	-12.3	88.3
120	24.67	36.72	4.16	-11.6	89.4
130	24.44	36.75	4.43	-7.1	91.2
140	24.08	36.77	4.49	-10.1	89.6
150	23.19	36.81	4.41	-15.2	79.1
160	22.13	36.86	4.21	-8.0	64.7
170	21.81	36.85	4.08	-0.0	53.3
180	21.49	36.84	4.11	-2.0	53.3
190	21.32	36.83	4.24	-7.3	55.4
200	20.96	36.85	4.09	-13.1	53.2
210	20.40	36.80	4.15	-13.7	54.4
220	20.17	36.78	4.19	-11.7	55.9
230	19.93	36.76	4.19	-9.8	55.4
240	19.85	36.75	4.20	-7.0	51.4
250	19.56	36.70	4.17	-6.0	50.9
260	19.40	36.69	4.18	-6.9	51.9
270	19.23	36.66	4.17	-8.2	52.6
280	18.66	36.57	4.06	-5.0	52.7
290	18.44	36.55	3.97	-4.1	52.7
300	18.23	36.52	3.98	-3.5	51.1
350	17.41	36.41	4.13	-0.7	49.7
400	16.32	36.23	3.91	-6.6	47.2
450	15.22	36.04	3.59	-1.4	44.2
500	13.42	35.73	3.24	-0.3	27.9
550	11.89	35.48	2.94	3.5	16.0
600	NaN	NaN	NaN	0.3	16.6

Table 38: Same as Table 13 for the cruise ID and the station number indicated.

Cruise ID: ws0327. Station: 8					
Pressure	Temperature	Salinity	Oxygen	U speed	V speed
[db]	[deg. C]	[psu]	[ml/l]	[cm/s]	[cm/s]
1	29.05	36.20	4.33	NaN	NaN
10	29.06	36.21	4.34	-17.0	84.2
20	28.99	36.23	4.36	-17.0	84.1
30	28.97	36.23	4.36	-16.8	83.7
40	28.91	36.23	4.36	-16.6	83.2
50	28.83	36.25	4.36	-16.7	82.3
60	28.47	36.33	4.36	-29.3	85.4
70	28.02	36.34	4.33	-28.0	83.9
80	27.12	36.43	4.35	-19.5	80.2
90	26.45	36.57	4.51	-20.8	75.6
100	26.34	36.60	4.53	-25.0	71.2
110	25.85	36.62	4.49	-25.9	68.3
120	25.56	36.65	4.42	-25.3	64.5
130	24.78	36.72	4.43	-24.6	60.6
140	23.98	36.77	4.43	-21.0	53.1
150	23.43	36.80	4.49	-13.4	48.4
160	23.20	36.82	4.45	-12.8	45.3
170	22.57	36.83	4.34	-14.7	47.0
180	22.22	36.84	4.25	-14.0	47.2
190	21.75	36.85	4.16	-12.0	45.4
200	21.13	36.81	4.34	-12.6	40.9
210	20.66	36.78	4.26	-13.9	42.3
220	20.15	36.74	4.15	-11.7	43.4
230	19.84	36.71	4.20	-9.2	43.2
240	19.38	36.67	4.34	-7.5	41.6
250	19.34	36.68	4.22	-3.7	40.3
260	19.06	36.64	4.16	-4.6	40.8
270	18.75	36.60	4.19	-7.0	41.4
280	18.61	36.59	4.16	-4.5	44.3
290	18.56	36.58	4.16	-4.5	44.2
300	18.52	36.57	4.17	-5.7	43.5
350	17.70	36.45	4.10	-2.8	38.9
400	16.79	36.31	3.96	1.8	27.0
450	15.79	36.15	3.94	-17.0	14.0

Table 39: Same as Table 13 for the cruise ID and the station number indicated.

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

NOAA

U.S. DEPARTMENT OF COMMERCE