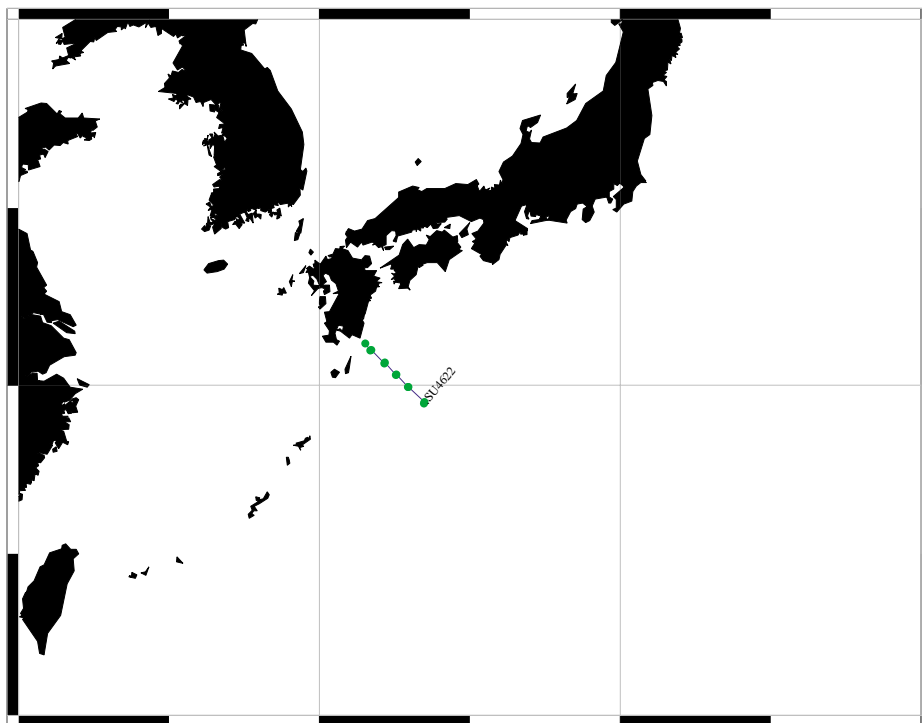


CRUISE NARRATIVE: PR17

(Updated 2005 MAR 22)



A. Highlights

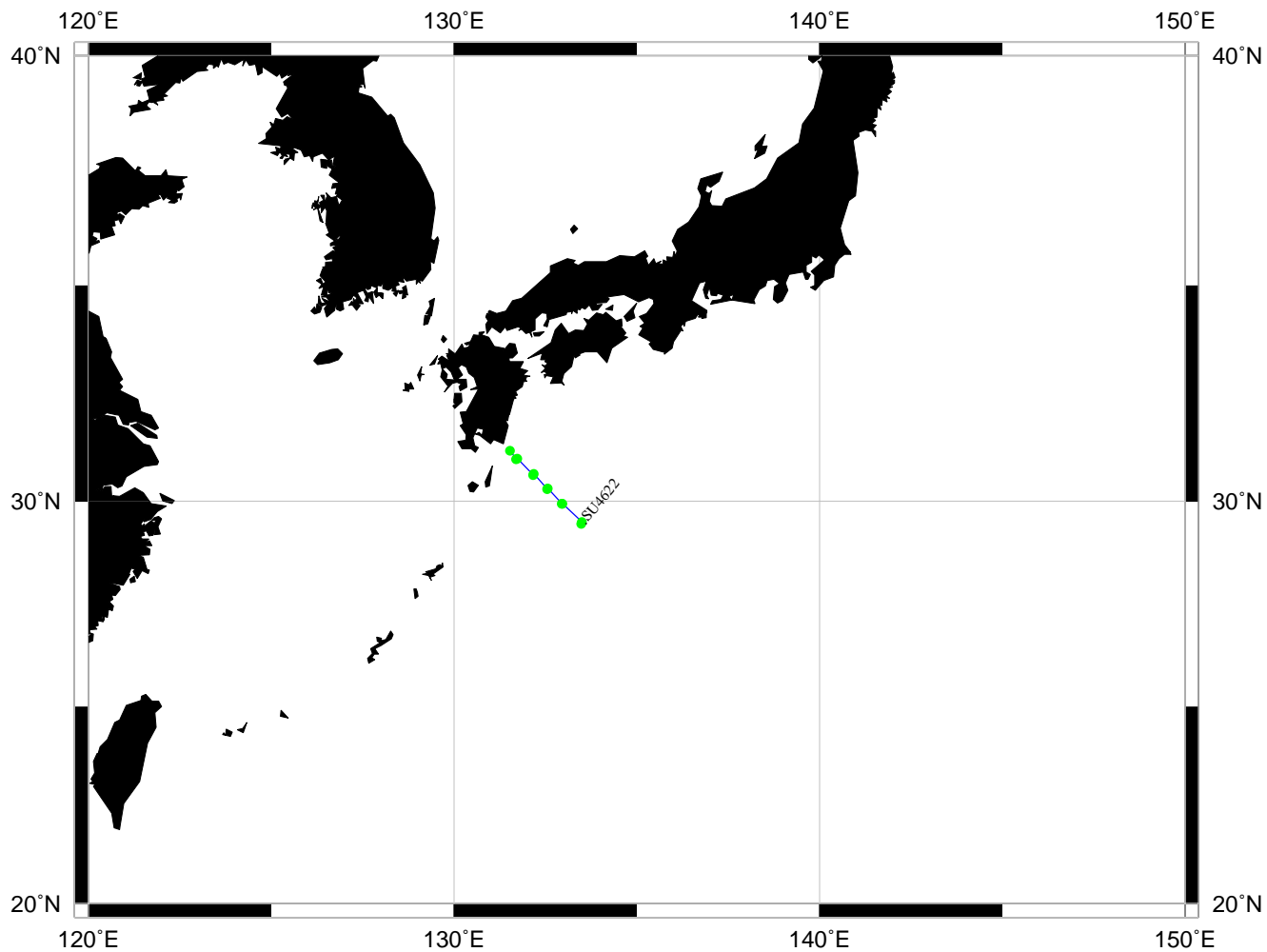
Cruise Summary Information

WOCE section designation	PR17
Expedition designation (EXPCODE)	49SU9202_4
Chief Scientist / affiliation*	Nobuo SATO / KMO
Dates	1992 FEB 25 to 1992 FEB 29
Ship	<i>R/V Shumpu Maru</i>
Ports of call	Kobe to Kochi
Station geographic boundaries	131° 30.27'E 31° 12.07'N 133° 29.5'E 29° 27.95'N
Stations	10
Floats and drifters deployed	0
Moorings deployed or recovered	0

Chief Scientist's Contact Information

Nobuo Sato
Kobe Marine Observatory
7-14-1 Nakayamate
Chuo-ku Kobe-shi, 650
JAPAN

PR17 Station Locations • SATO • *R/V Shumpu Maru* • 1992



B. Cruise Summary

The cruise track and station locations of leg 4 are shown in [Figure 1](#). The ship departed Kobe on February 25, 1992, and made 6 CTD/rosette stations of section PR17. 4 XBT stations were made between CTD/rosette stations. To the first CTD/rosette station the ship reached at 1030 UTC on February 26, from the last station departed at 1214 UTC on February 27.

The CTD is EG&G NBIS Mark III B (6500 db type, no oxygen sensor). Water samples were collected from 1.7 liter Niskin bottles mounted on the General Oceanics Rosette multisampler. However, surface water samples were collected by a bucket.

Table 1: Principal Investigators for All Measurements

Name	Responsibility	Affiliation
Sukeyoshi TAKATANI	Oxygen, Nutrients, PH	KMO
Ryohei OKADA	CTD, Salinity	KMO

Table 2: Cruise Participants for leg 4

Name	Responsibility	Affiliation
Nobuo SATO	Chief Scientist Oxygen, Nutrients, PH	KMO
Ryohei OKADA	CTD Hardware CTD Software	KMO
Sukeyoshi TAKATANI	Oxygen, Nutrients, PH	KMO
Hiroki SUZUKI	Oxygen, Nutrients, PH	KMO
Shunta NAITO	Watch Stander	KMO
Keiichi SATO	Watch Stander	KMO
Jun OBATA	Watch Stander	KMO
Akiyoshi AWANO	Watch Stander	KMO
Yasuji HATA	Watch Stander	KMO

C. Measurement Techniques and Calibrations

C.1. CTD

The CTD is EG&G NBIS Mark III B (6500 db type, no oxygen sensor). A HP 9000 Series 300 model 330 (Hewlett Packard) with 4 MB of memory was used as the primary data collection device.

The temperature and pressure sensor were calibrated at the calibration facility of S•E•A CO., LTD before the cruise. The results are shown in Table 3.

Temperature and pressure (increasing) calibration values are used to correct CTD data, by linear interpolation inside the calibrated regime. CTD data outside of the regime is corrected by the

calibration values on the boundary, at the each side. Notice that the upcast pressure data is corrected by Pressure (increasing), not Pressure (decreasing) in Table 3.

Table 3: The temperature and pressure sensor calibration values

TEMPERATURE
(Calibrated on January 31, pre-cruise)

Standard Temperature	CTD Temperature	Difference
1.9726	1.9872	-0.0146
3.5818	3.5966	-0.0148
5.2368	5.2514	-0.0146
7.4751	7.4903	-0.0152
10.2274	10.2434	-0.0160
12.5938	12.6111	-0.0173
15.0394	15.0582	-0.0188
20.1280	20.1500	-0.0220
25.1896	25.2145	-0.0248
30.1553	30.1818	-0.0265

PRESSURE
(increasing, Calibrated on January 31, pre-cruise)

Standard Pressure	CTD Pressure	Difference
0.0	4.5	-4.5
98.0	102.1	-4.1
293.9	297.8	-3.8
489.9	494.3	-4.3
979.8	986.2	-6.3
1959.6	1966.6	-7.0
2939.5	2944.1	-4.6
3919.3	3921.3	-2.1
4899.1	4899.8	-0.7
5878.9	5879.7	-0.8

PRESSURE
(decreasing, calibrated on January 31, pre-cruise)

Standard Pressure	CTD Pressure	Difference
0.0	5.1	-5.1
98.0	104.1	-6.1
293.9	302.0	-8.1
489.9	499.6	-9.7
979.8	991.4	-11.6
1959.6	1969.0	-9.3
2939.5	2944.8	-5.4
3919.3	3921.4	-2.1
4899.1	4899.7	-0.6
5878.9	5879.7	-0.8

We collected water samples at 5 stations to decide the conductivity sensor calibration constants, and done salinity analyses by using the salinometer, AUTO-LAB model 1601. But the measured salinity value of the water samples were too low to decide the calibration constants, for example, 34.634 (ps) for the sample collected at the depth of 3782 decibar in pressure.

In the result, we assume the conductivity sensor calibration constants in Table 4, not using the measured salinity value of the water samples.

Table 4: The conductivity sensor calibration constants

Bias	Slope
0	1.00000

The temperature of "SU9202.SEA" and "SU????_?.CTD" files are described with the international temperature scale of 1990, ITS-90.

C.2. Oxygen Measurements

The determination of dissolved oxygen was done by the modified version of the Winkler method described in "Kaiyo Kansoku Shishin (Manual of Oceanographic Observation)" published by the Oceanographical Society of Japan (1970). No estimation of accuracy and precision and reagent blank has been done.

C.3. Nutrients Analyses

The nutrients analyses were done by the Technicon Auto Analyzer II described in "Kaiyo Kansoku Shishin (Manual of Oceanographic Observation)" published by the Oceanographical Society of Japan (1970). No estimation of accuracy and precision has been done.

C.4. pH Measurements

The pH measurements were done by the pH meter (Denki Kagaku Keiki co., LTD) described in "Kaiyo Kansoku Shishin (Manual of Oceanographic Observation)" published by the Oceanographical Society of Japan (1970). No estimation of accuracy and precision has been done. Notice that the order of measurements is 0.01.

C.5. Notes for the SU9202.SUM, SU9202.SEA and SU????_?.CTD files

The first 2 characters of the file name of *.SUM, *.SEA and *.CTD files are SU for R/V Shumpu Maru of Kobe Marine Observatory. These characters are followed by the last two digits of the year and the month for the *.SUM and *.SEA files. For the *.CTD files, the characters SU are followed by the unique station number and the cast number given by the Japan Meteorological Agency.

In "SU9202.SUM", we leave some position column blank (when bucket was used) because not recorded.

In "SU9202.SEA", we leave "sample number (SAMPNO)" column of the surface layer blank, because of using bucket.

All water sample quality flags during this cruise were "3" (or "4", "5", "9"), because no estimation of accuracy and precision has been made.

In "SU?????.CTD", we give the value -9 to "NUMBER OBS.", because we lost the CTD raw data and data number of the observation stations when the earthquake occurred in Kobe, Japan, on January 17, 1995.

DATA PROCESSING NOTES

Date	Contact	Data Type	Data Status Summary										
10/20/99	Bartolacci	CTD/BTL/SUM	Submitted; being reformatted by s.anderson										
			<p>These data were obtained and sent to the WHPO by Jim Crease on 1999.10.19. All original data resides in the subdirectory called original. Sum and Sea files need minor reformatting and will be sent to S. Anderson. See pr17_JCrease.notes for email correspondence.</p> <p>Files present are: SU9202.CTD.ZIP SU9202.DOC SU9202.SEA SU9202.SUM pr17_JCrease.notes</p>										
08/04/00	Saiki	CTD/BTL	Data are Public										
			I am pleased to inform you that the PIs and participants of the one-time and repeat cruises conducted by the Japan Meteorological Agency's vessels agreed to change most of the data status to public.										
08/15/00	Bartolacci	CTD/BTL/SUM	Data Reformatted, encrypted files taken offline										
			<p>Email sent by Masaro Saiki to release these data into the public domain. Encrypted files were moved to original directory.</p> <p>Note: Encrypted files contain original unformatted data. Unencrypted copies were then edited to conform to WOCE format as follows:</p> <p>SUM: Removed hard carriage returns. Added dashed header line below units. Removed leading spaces before expocode. Aligned *all* columns to conform with WOCE format. Capitalized all headers. Added date/name stamp. Changed expocode from 49SU9202/4 to 49SU9202_4. Ran sumchk: warnings pertain to missing lat/lon for following stations/ station combinations:</p> <table style="margin-left: 40px;"> <tbody> <tr> <td>SU4617</td> <td>2</td> </tr> <tr> <td>SU4618</td> <td>1, 2</td> </tr> <tr> <td>SU4619</td> <td>1, 2</td> </tr> <tr> <td>SU4620</td> <td>1, 2</td> </tr> <tr> <td>SU4622</td> <td>1, 2</td> </tr> </tbody> </table> <p>Note: A copy of the formatted sumfile was edited to fill in missing cast code lats/lons. Because lat/lons were sporadically missing from all BE, BO, EN cast codes, lat/lons were copied from BE or EN to BO when needed to make one complete set of cast codes for a navigation file. The station track was generated from this edited sumfile. This copy resides in the original directory and is called pr17sum_for_nav.txt.</p> <p style="text-align: center;">(more)</p>	SU4617	2	SU4618	1, 2	SU4619	1, 2	SU4620	1, 2	SU4622	1, 2
SU4617	2												
SU4618	1, 2												
SU4619	1, 2												
SU4620	1, 2												
SU4622	1, 2												

DATA PROCESSING NOTES

Date	Contact	Data Type	Data Status Summary																		
08/15/00	Bartolacci	CTD/BTL/SUM	Data Reformatted (continued)																		
			<p>HYD: removed hard carriage returns. Changed expocode from 49SU9202/4 to 49SU9202_4. Added leading zero to decimal values CTDPRS for the following station/cast/samps:</p> <table> <tbody> <tr> <td>SU4617</td> <td>2</td> <td>10</td> </tr> <tr> <td>SU4618</td> <td>3</td> <td>20</td> </tr> <tr> <td>SU4619</td> <td>3</td> <td>21</td> </tr> <tr> <td>SU4620</td> <td>3</td> <td>21</td> </tr> <tr> <td>SU4621</td> <td>3</td> <td>22</td> </tr> <tr> <td>SU4622</td> <td>3</td> <td>22</td> </tr> </tbody> </table> <p>Moved asterisks from bottle number column to sample number column, since no bottle numbers were given, yet a quality flag was designated. Since sample numbers were supplied the asterisks were moved to the top of this column.</p> <p>BTLNBR column is empty. No values or missing data values. CTDRAW column is also entirely empty (no missing data value) Ran wocecvt: errors produced as a result of missing lat/lon in sumfile as well as missing bottle and ctdraw fields. No other errors produced. Added time/name stamp.</p> <p>CTD: Changed expocode from 49SU9202/4 to 49SU9202_4. Added two spaces in parameter header to line columns up with units columns. Ran wctcv. Errors produced due to missing date/time information in sumfile. no other format errors produced.</p> <p>reziped formatted files.</p>	SU4617	2	10	SU4618	3	20	SU4619	3	21	SU4620	3	21	SU4621	3	22	SU4622	3	22
SU4617	2	10																			
SU4618	3	20																			
SU4619	3	21																			
SU4620	3	21																			
SU4621	3	22																			
SU4622	3	22																			
04/20/01	Uribe	BTL/SUM	Website Updated; CSV File Added																		
			Bottle file was converted into Exchange format. Website now contains a link to the Exchange file. #Station/Cast SU4617/2, SU4618/3, SU4619/3, SU4620/3, SU4621/3, SU4622/3 were removed because of missing navigational data.																		
06/18/01	Uribe	CTD	Website Updated; CSV File Added,																		
			sumfiles need to have gaps filled, see note: CTD was converted to exchange format. New files were put online. Sumfiles needed to go through fix_sum_file.pl to fill in data gaps in order to run exchange code.																		
03/22/05	Kappa	Cruise Report	Updated																		
			Added Station Location Plot Added PDF version of the report Added these Data Processing Notes																		