

R/V Shumpu Maru Cruise SU9409

1 Cruise Narrative

1.1 Highlights

Expedition Designation
Shumpu Maru Cruise SU9409

Chief Scientists
Leg 2:Tadayoshi UTUNOMIYA, Kobe Marine Observatory(KMO)

Ship
R/V Shumpu Maru

Ports of Call
Leg 2:Kochi to Kochi

Cruise Dates
Leg 2:October 1 to October 6,1994

1.2 Cruise Summary

The cruise track and station locations of leg 2 are shown in Figure 1.

The ship departed Kochi on October 1,1994, and made 6 CTD/rosette stations of a section PR17. 3 XBT stations were made between CTD/rosette stations. To first CTD/rosette station the ship reached at 2058 UTC on October 3, from last station departed at 0240 UTC on October 5.

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.

1.3 List of Principal Investigators

The principal investigators for all the parameters measured on the cruise are listed in Table 1.

Table 1: Principal Investigators for All Measurements

Name	Responsibility	Affiliation
Kouji KADONO	Oxygen, Nutrients	KMO
Tadayoshi UTUNOMIYA	CTD, S	KMO

1.4 List of Cruise Participants

The cruise participants for leg 2 are listed in Table 2.

Table 2: Cruise Participants for leg 2

Name	Responsibility	Affiliation
Tadayoshi UTUNOMIYA	Chief Scientist CTD Hardware	KMO
Kouji KADONO	Oxygen, Nutrients	KMO
Akira NAKADATE	Oxygen, Nutrients	KMO
Satoshi SUGIMOTO	CTD Software	KMO
Syuji TUBAKI	Oxygen, Nutrients	KMO
Kouji HAYASHI	Watch Stander	KMO
Keiichi SATO	Watch Stander	KMO
Hiroki SUZUKI	Watch Stander	KMO
Kiyoshi MURAKAMI	Watch Stander	KMO

2 Measurement Techniques and Calibrations

2.1 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 a 4 MByte of memory was used as the primary data collection device.

The temperature and pressure sensor were calibrated at the calibration facility of SVEYA 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 interpolatin inside the 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(Caliblated on September 22, pre-creise)

Standard Temperature	CTD Temperature	Difference
1.0047	1.0014	0.0033
2.0030	1.9996	0.0034
3.0033	3.0002	0.0031
4.0031	4.0004	0.0027
5.2502	5.2477	0.0025
7.4367	7.4344	0.0023
9.9995	9.9973	0.0022

Pressure(increasing, Caliblated on September 21, pre-cruise)

Standard Pressure	CTD Pressure	Difference
0.0	-0.5	0.5
98.0	96.9	1.1
293.9	293.1	0.8
489.8	490.6	-0.7
979.7	984.5	-4.8
1959.4	1967.1	-7.7
2939.1	2946.2	-7.1
3918.7	3925.1	-6.4
4898.4	4905.3	-9.8
5878.1	5887.0	-8.9

Pressure(decreasing, calibiated on September 28, pre-cruise)

Standard Pressure	CTD Pressure	Difference
0.0	1.8	-1.8
98.0	101.5	-3.6
293.9	299.2	-5.3
489.8	497.1	-7.3
979.7	989.8	-10.1
1959.4	1969.2	-9.8
2939.1	2946.7	-7.7
3918.7	3925.0	-6.3
4898.4	4905.1	-6.6
5878.1	5887.0	-8.9

The conductivity sensor were calibrated at sea using data from the analyses of salinity collected at 4 stations. The salinometer is AUTOSAL 8400B(Guildline) for the analyses of salinity of the water samples.The results are shown in Table 4.

The calibration constant is determined assuming that the bias 0.

