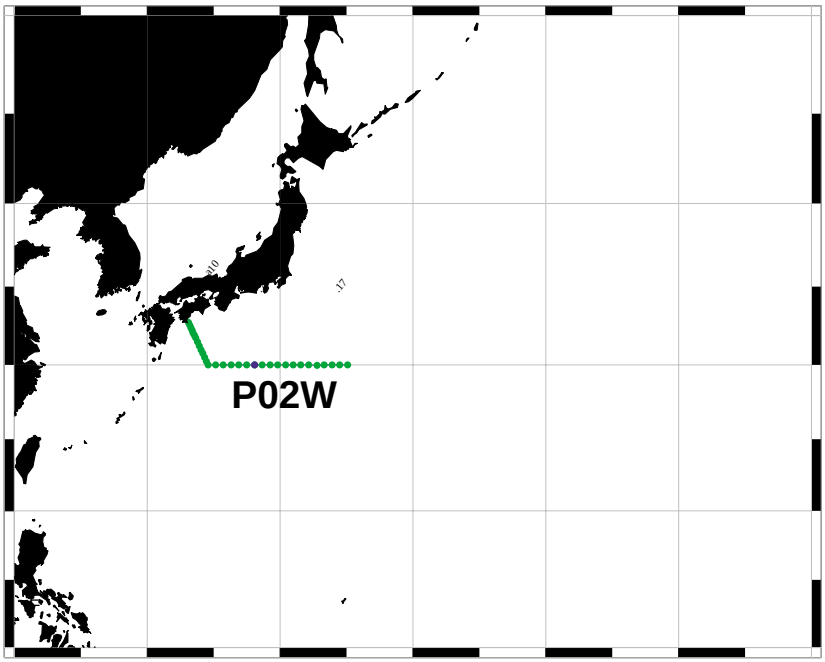
A. Cruise Narrative: **P02W** (along 30° N in the North Pacific)



A.1. Highlights

WHP Cruise Summary Information

WOCE section designation	**P02W**
Expedition designation (EXPOCODE)	**492SSY9411_1**
Chief Scientist(s) and their affiliation	**Dr. Mizuno Iwanaga/MSA***
Dates	1994.NOV.01 - 1994.NOV.14
Ship	S/V Shoyo
Ports of call	unknown
Geographic boundaries of the stations	32° 44.8' N 133° 06.80' E 145° 05.10' E 29° 59.7' N
Number of stations	32
Floats and drifters deployed	unknown
Moorings deployed or recovered	unknown
Contributing Authors:	none cited

*__Chief Scientist__
Dr. Y. Iwanaga • Maritime Safety Agency • Hydrographic Department • Chuo-Ku • 5-3-1 Tsukiji • Tokyo, 104 • JAPAN
TEL: 81-33-541-3811 • FAX: +81-3-3545-2885

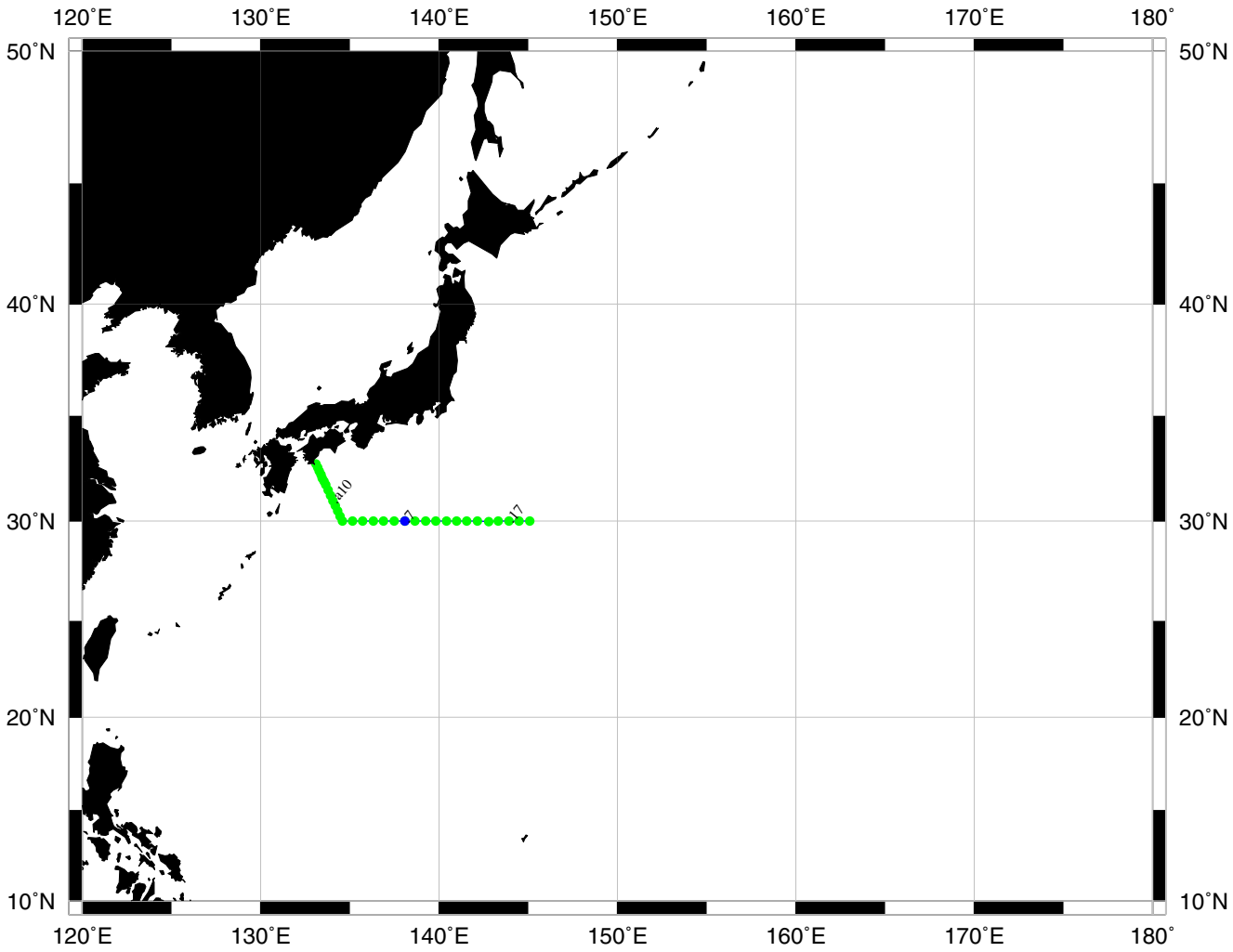
Note:
With the exception of this page and the WHPO Data Processing Notes (pages 6-7), this report is only general information common to all 4 P02 cruises. No report for P02W has yet been provided.

WHP Cruise and Data Information

Instructions: Click on any item to locate primary reference(s) or use navigation tools above. **Shaded** items not available at the time this report was assembled

Cruise Summary Information	Hydrographic Measurements
Description of scientific program	CTD - general
	CTD - pressure
Geographic boundaries of the survey	CTD - temperature
Cruise track (figure)	CTD - conductivity/salinity
Description of stations	CTD - dissolved oxygen
Description of parameters sampled	
Principal Investigators for all measurements	**Acknowledgments**
Cruise Participants	
	References
Problems and goals not achieved	
Other incidents of note	**DQE Reports**
	CTD
	S/O2/nutrients
	CFCs
	14C
	Data Status Notes

Station Locations for P02W Iwanaga 1994 (JPN)



Produced from .sum file by WHPO-SIO

A.2. Cruise Summary

P02 was composed of four different cruises which were carried out during the period from October 14, 1993 to November 14, 1994 utilizing three different observation ships. No large volume sampling was carried out. Most of the observation line is located on 30°N. But west of 134.5 E, the line goes northwest toward Cape Ashizuri along the PCM5 line. Also, east of 123°W the line bends northeast to avoid Mexican territory.

Two of the four cruise were intended to get high-quality CTD data on high density observation stations. For example, the shortest interval between stations is 30 nautical miles around some topographic features, with small volume water sampling for nutrient analysis (Salinity, Dissolved oxygen, Silicate, Phosphate, Nitrate, (Nitrite) and pH). These two cruises compose the central and eastern part of P02, and the western most part of P02, respectively. The first cruise began on 14 October 1993 and the latter began on the 15th of January, 1994. The third cruise planned to get nutrient and chemical tracers data (Freon, Total Carbon, Tritium, Radioactive carbon/sampling only, pC02) mainly at 32 depths with CTD-ROSSETE 101 system. This cruise started on the 7th January, 1994.

This fourth and final cruise, which measured ctd data as well as discreet salinity and oxygen data, Silicate, Phosphate, and Nitrate, began on November 1, 1994.

Standards for nutrient is controlled by PIs among these three cruises. Standards used for these cruise was re-standardized at Scripps institution of Oceanography in the course of first cruise.

A.3. List of Principal Investigators

Parameter	Principal Investigator(s)	Affiliation
CTD02/rosette	Masao Fukasawa	School of Marine Science, Tokai Univ.
	Ichiro Yasuda	Tohoku Regional Fisheries Research Laboratory
	Hiroyuki Yoritaka	Hydrographic Department, MSA
T,S	Hiroyuki Yoritaka	Hydrographic Department, MSA
02	Yoshihisa Kato	School of Marine Science, Tokai Univ.
	Katsumi Yokouchi	Tohoku Regional Fisheries Research Laboratory
N03, NO2, NH4	Hiromi Kasai	Hokkaido Regional Fisheries Research Laboratory
P04, SiO2	Chizuru Saito	National Institute for Environmental Studies
3H, ∆14C, CFC	Yutaka Watanabe	National Institute for Resources and Environment
∑C02, pH, Alkali., pCO2	Tsuneo Ono	Faculty of Fisheries, Hokkaido University
T (underway), ADCP	Ichiro Yasuda	Tohoku Regional Fisheries Research Laboratory
S (underway)	Masao Fukasawa	School of Marine Science, Tokai Univ.
XBT	Hiroyuki Yoritaka	Hydrographic Department, MSA
Moorings	Masao Fukasawa	School of Marine Science, Tokai Univ.
Surface Drifters	Yutaka Michida	Hydrographic Department, MSA

A.4. Scientific Goals

To get reliable dataset to estimate meridional transport of physical and chemical mass across 30°N. Especially, at relatively shallow depths, the zonal transport of total carbon and CFCs included in NPIW-corresponding layer and NPSTMW are object to be estimated. Also heat and fresh water (and/or salinity) fluxes across 30°N are subject to be estimated.

From 1991, WOCE-like observation programmes have been carried out along 32.5° N by the Hydrographic Department, Maritime Safety Agency and School of Marine Science, Tokai University. In these programmes current variations were checked by current meter moorings around the Shatsky Rise. Also, nutrient variations were examined through 5 different cruises. Results from these programmes show that eddies which are associated with the Shatsky Rise give so large effects on oceanic conditions around the region. The variation of nutrient profiles excess 20% of their mean structure at the intermediate depth in magnitude.

In P02 cross section, we encounter three large topographic features, the Shatsky Rise, the Emperor Seamount and the Hess Rise. As explained in foregoing section, same P02 line was repeated twice within three months. This strategy of operation will help us to know some standard errors in estimated fluxes through information about time-dependent oceanic structures.

A.5 Water Sampling Equipment and Underway Measurements

A.6 Cruise Track and Stations

Station positions are shown on Figure 1.

A.7 Cruise Participants

B. Underway Measurements

1) **Navigation**
   GPS
2) **Bathymetry**
3) **Acoustic Doppler Current Profiler (ADCP)**
4) **Thermosalinograph and related measurements**
5) **XBT and/or XCTD**
6) **Meteorological observations**
7) **Atmospheric chemistry data**

(no data)

WHPO Data Processing Notes

Date	Contact	Data Type	Data Status Summary
02/24/99	Talley	I.D.	Data Update
	Identify line as P02a for now		
03/26/99	Yoritaka	BTL/DOC	flags and doc requested by scd
	First, there are only 3 flags for each measurement, but there are 5 potential parameters that could be flagged. We *think* that the flags are for CTDSAL, SALNTY and OYXGEN. Could you confirm this please? Second, are these data to be made public? Right now they are encrypted on our website. Please let us know. Finally, I have no documentation for this cruise. Do you have any that could be transmitted electronically?		
04/15/99	Bartolacci	SUM	.sum files (p02w, p02e, p02c) and updated
	In the case of p02c and p02e the sum file changes (via Lynne)were correcting the occurrances of the old line number designation with the new line number designation, and (by me)replacing the slashes in the expocode to underscores. (See Lynne's emails below) IN the case of p02w the .sum file changes made (by Lynne) were converting decimal degrees into degrees and minutes in the lats and lons; the time was converted to GMT; station no. now has place holding zeros; cast type was changed from CTD to ROS; and height above bottom, wire out, and no. of bottles columns were also added. This conversion has shifted columns, however I ran sumchk on it with no errors. Slashes in the expocode were also replaced by underscores. I have also replaced the corrupted P2E119.WCT file with Lynne's updated version, and updated the table to reflect this. The table was also corrected to reflect the *bottle* data file being encrypted, NOT the .sum file (previously the table indicated the .sum file was Non-public and the bottle file was public).		
04/15/99	Talley	SUM	Data file reformatted Update
	I took Yoritaka's p02wsu.txt file and got it into the right column format. some of the information in it has changed slightly from the previous version. Most importantly, lat and long are now in degrees and minutes. I have place p02wsu.txt in my ftp area on whpo.ucsd.edu		
09/19/00	Michida	BTL	Data should probably be public
	With regard to the hydrographic data collected by Japanese groups, I found that the present status of availability of the data for P02E and P02W appeared as 'NP' in the listings of WHPO web site. I believe they should be ready to be made public. Have you had any contact to or from Mr Yoritaka, the present contact person for both lines? I will be pleased to ask him to confirm that the data are to be public, if necessary.		
12/20/00	Kappa	DOC	Doc Update; txt version assembled
01/22/01	Huynh	DOC	Website Updated; txt version put online

WHPO Data Processing Notes

Date	Contact	Data Type	Data Status Summary
03/09/01	Yoritaka	CTD/BTL	Data are Public; database updated
	I would like to consent to open Bottle_S/O2 and CTD data on P2E and P2W to the public as PI. Then, would you please change some information on the summarized table of WHP one time cruises on web as follows; P02W; CS: Iwanaga, Mizuno -> Iwanaga/(HD)MSA SHIP: SYOYO -> SHOYO		
03/19/02	Bartolacci	CTD/BTL	Website Updated; Status Changed to Public
	I have unencrypted the bottle and ctd files for this cruise as they were released to the public by Yoritaka on 2001.03.09. Index page has been updated to reflect this change.		
04/12/02	Talley	CTD	Update Needed; some DQ flags appear incorrect
	Just a note for the files - the deep CTD data from stations A7-A13 on p02w has a lot of problems. Most of the profiles have large sections with both temperature and salinity flagged "6". When I compute potential density (sigma 0, sigma 4 and neutral density), it appears that the chunks of data surrounding these flagged portions are also suspect, leading to marked deep density inversions (over many tens of dbars). I don't have a way to do rigorous quality control or reprocessing of these data. I also don't have an easy way to determine what additional parts of each station's data should be flagged. This is just a heads up to anyone planning to use these data that they appear to have quite major problems. And if there is a data quality control queue, it might pay off to have a data set like this near the top, since it clearly has problems. For the printed atlas, we will just do judicious hand editing of the inverted contours in density.		
04/16/02	Anderson	CTD	Website Updated
	• blank lines at ends of files removed • Replaced ctd .zip file with file received from Lynne Talley. She reformatted all ctd files to remove blank line that was at the end of each file. • No changes to data or flags.		
05/02/02	Anderson	BTL	Deleted the ***'s for CTDSAL and CTDOXY
	There were not enough Q1 flags for the number of parameters with ***'s. After looking at the data it was obvious that the CTDSAL and CTDOXY were the parameters that should not have the ****'s There were 5 parameters with ***'s, but there were only 3 Q1 flags. After looking at the data it became obvious that the CTDSAL and CTDOXY should not have ***'s. Removed the ***'s from CTDSAL and CTDOXY		
03/31/03	Kappa	DOC	replaced incorrect doc on website w/ new doc
	Earlier online cruise report was for the wrong leg of p02. currently do not have any doc info. for p02w except the introduction (which is common to all 4 legs) and these data processing notes. Also added the whpo-sio generated station track.		