ISSN 0915-9851
JP012-03-1

JODC
JAPAN OCEANOGRAPHIC DATA CENTER
since1965

RNODC ACTIVITY REPORT

Responsible National Oceanographic Data Center
for WESTPAC
for IGOSS
for MARPOLMON
for ADCP

No.14
March 2003

JAPAN OCEANOGRAPHIC DATA CENTER
HYDROGRAPHIC & OCEANOGRAPHIC DEPARTMENT,
JAPAN COAST GUARD

Preface

First of all, I would like to thank users and contributors for their usual support to JODC's activities.

The main purpose of this report is to report the present status of data distribution and utilization.

I hope that oceanographic researches will become more fruitful by using the observation data gathering from various resources. Oceanographic data is valuable not only the primary user responsible for its original collection, but also to a wide range of secondary users.

I would like to compare the mechanism concerning the promotion of data exchange to a spinning top. Our mission is to spin the top faster and to enlarge it. There are various possible approaches to do so. In data exchange, for example, what users or contributors require differs according to the diversity in requested data items, or the various collecting conditions of data, or the uneven skills of users. JODC will respond to the diverse needs as much as possible.

Our main task is oceanographic data management and exchange within the International Oceanographic Data and Information Exchange (IODE) system. In addition, we have many tasks, for examples, educational training concerning the data management, promotion of IODE activities by planning and participating in projects or meetings, and development of data management techniques, etc. Our major events in the year 2002 are the commissioning of GODAR-WESTPAC project and the remarkable improvement of J-DOSS data distribution system via Internet. Please note that there are some activities not mentioned in this document, as they are still underway and ongoing.

It is true that there are a lot of oceanographic data that are left without attention. I think that the fundamental of JODC's activities is to prevent the loss of such data and to manage them readily available for the user’s convenience.

We would deeply appreciate your assistance and guidance towards the tasks in making the spinning of the top stable and faster, and making the top itself larger.

March 2003
Nobuyuki Shibayama
Director
Japan Oceanographic Data Center

CONTENTS

ANNEX

1. Topics in JODC

1.1 Changing the Name of Japan Hydrographic Department

Japan Oceanographic Data Center was one division of Hydrographic Department, Japan Coast Guard. The Hydrographic Department, which was established under Navy in 1871, was reorganized and changed its name to Hydrographic & Oceanographic Department (HOD) on April 1 2002 in order to meet recent needs and surroundings.

Contact information for JODC is introduced as followings for your reference, though it was not changed;

Japan Oceanographic Data Center
5-3-1, Tsukiji, Chuo-ku, Tokyo 104-0045, Japan
Tel: +81-3-3541-7588 or 3541-4295, Fax: +81-3-3545-2885
E-mail: mail@jodc.go.jp
http://www.jodc.go.jp/

1.2 Introduction of Received Data;

Some interesting data sets received by JODC in 2002 are introduced hereinafter.

1) World Ocean Database 2001

National Oceanic Data Center (US-NODC) in National Oceanic and Atmospheric Administration (NOAA) published World Ocean Database 2001 (WOD01) in June 2002. WOD01 is a set of 8 CD-ROMs that is stored various oceanographic survey data from each sea area of the world, which collected through international oceanographic data and information exchange system (IODE) promoted by Intergovernmental Oceanographic Commission (IOC) of UNESCO.

WOD01 is an update of World Ocean Database 1998 (WOD98), WOD01 expand on WOD98 by including new variables, data types, and additional historical as well as modern observations.

For instance, whereas the number of OSD files that contain serial station data, etc. was app. 1.4 million in WOD98, it is app. 2.1 million in WOD01, an increase by 50%. WOD01 contains some sample software to support the user's convenience, and one of them, Ocean Data View (ODV) is a software package for the interactive exploration, visualization of oceanographic, analysis and other geo-referenced profile or sequence data.

Alfred Wegener Institute (AWI) in Germany developed the software that enables observation station chart or vertical distribution diagram, inter-component plot diagram and isogram chart to generate in simple operation. Furthermore, you can be obtained WOD01 data and associated printed material through US-NODC web site, and the data can be downloaded in each file per observation instrument/area code (10 degrees mesh).

http://www.nodc.noaa.gov/OC5/WOD01/pr_wod01.html

It is also possible to get the data set of CD-ROM on line from National Virtual Data Center (NVDC) in NOAA.

http://www.nvds.noaa.gov/

2) WOCE Global Dataset Ver.3.0

Commemorating the conclusion of World Ocean Circulation Experiment (WOCE), the international conference, "WOCE and Beyond" was held from November 18 to 22, 2002 in San Antonio, Texas, U.S.A. And the data set of two DVD-ROMs, "WOCE Global Data Version 3.0" contained the outcome of WOCE project, was handed out to the conference participants.

In this DVD data set, observation result of WOCE Hydrographic Program and data obtained through each WOCE program like Drifting Buoy, Sea Level, etc. are stored, as well as the digital publication of reports, newsletters that have been published in WOCE project.

This data set can be obtained from NODC in U.S.A., and also can be browsed at NODC web site, http://www.nodc.noaa.gov/woce_v3/index.html.

1.3 Renewal of JODC Data On-line Service System (J-DOSS)

It has been seven years since the beginning of J-DOSS operation, which aims at providing users with the data and information managed by JODC through the Internet. This time, JODC has made a major improvement of the system, and the outline of the principal changes is as follows.

1) Hardware enhancement

In order to handle larger oceanographic data that come out from advanced observation instruments, and to cope with the rapid spreading of Internet across the community, JODC has upgraded the system with increased memory capacity and high-performance CPU. It has improved for the speed of the search and the contents of the database. At the same time, servers are provided for each function of the Internet to distribute the risk for better security.

2) Removal of restriction on J-DOSS users

The downloading data in the J-DOSS was restricted only to the authorities having data exchanges with JODC. However, taking the opportunity of this renewal, the restriction was removed from July 1, 2002.

3) Providing data

Presently, the following data and information are available.

Serial Station Data (Water samplers, STD, CTD, BT)
Ocean Current Data (Ship Drift, GEK, Shipboard ADCP)
Tidal (hourly tidal height) data
Marine organisms data (Organisms observation data, Taxonomic code)
Depth-sounding data in 500m mesh
Statistical Analyzed Result (Water temperature, salinity, ocean current)
Oceanographic Research List of Japan (National Oceanographic Programs (NOP))
Cruise summary report (CSR)
IOC publications and Oceanographic Abbreviation/Acronym dictionary

4) Search and download method

The processing flow for obtaining data or information from J-DOSS site is shown in below.

(1) After accessing to J-DOSS site (http://www.jodc.go.jp/service.htm), click on the necessary data or information.
(2) Enter the search criteria on data search page appeared in the display. The maximum volume is about 5MB of data at a time.
(3) To download the search results, it is necessary to enter the user information like the purpose of the use of the data, and the organization name, etc.
(4) After the user information is entered, an FTP file with a file name will be created. Click on the file name and the file will be downloaded to the user's computer.

The display and operation may differ according to the web browser of the user. Besides, because the program uses JavaScript in taking the user's entry, the security level of the user's browser have to be set to allow it.

5) Update of the data

The followings are the data updated at present.

(1) Serial Station Data (Water samplers, STD, CTD, BT, etc.)

Duration of data: from year 1874 to 2002

(2) Ocean Current Data (Ship Drift, GEK, Shipboard ADCP, etc.)

Duration of data: from year 1854 to 2001

(3) Tidal (hourly tidal height) data

Duration of data: from year 1961 to 2002

Number of stations: 111 stations

(4) Marine organisms data

- Taxonomic code: uploaded 'JODC Taxonomic Code of Marine Organisms (plankton)' published by JODC in March 2002 (See page 11, RNODC Activity Report No.13).
- Organisms observation data

Duration of data: from year 1949 to 1990

(5) Depth-sounding data in 500m mesh

This is the depth-sounding data in every 500m interval in the sea area surrounding Japan and the result of integrating enormous amount of survey data collected from Japan Coast Guard and other marine research organizations. Due to the data transfer limitation, the downloading area at a time is restricted to 2 degrees range in both longitude and latitude.

Lastly, JODC is committed to maintain the J-DOSS data up-to-date, and to add new data items in future. Received data from each country is plotted in Fig.1. JODC hopes that you will kindly support our management.

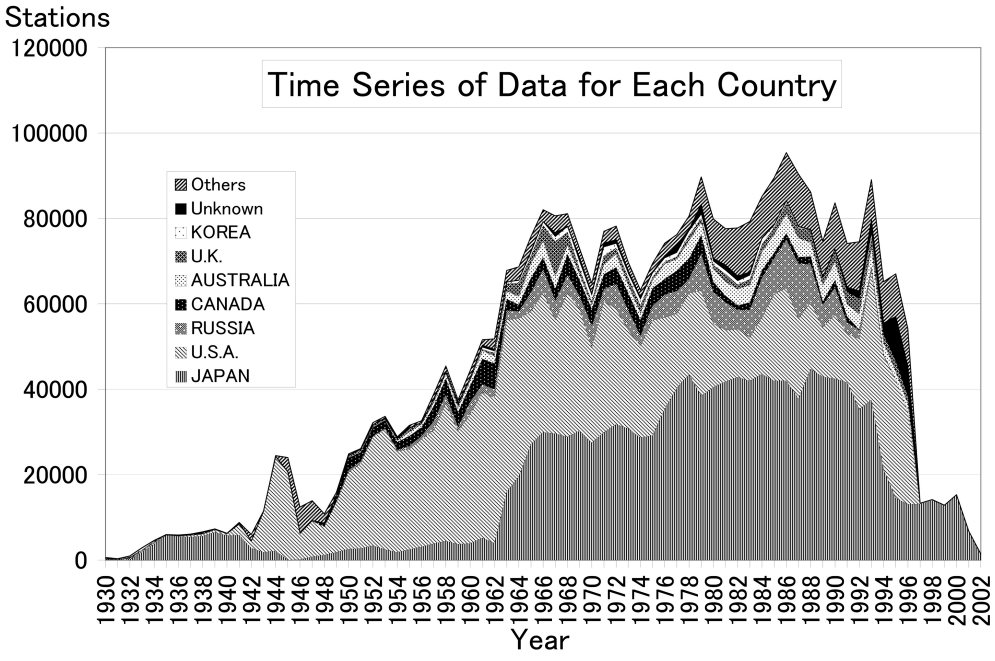


Fig. 1 Time Series of Data for Each Country

1.4 GODAR-WESTPAC

The IOC has established the Global Ocean Data Archaeology & Rescue (GODAR) project in 1993 in order to save oceanographic data from the risk of losing by degradation of recording media or disaster, etc., and also to increase the volume of historical data available to climate change and other researches. The large volume of data are collected through the project under the cooperation of IOC member states, and has been made available internationally, without restriction, via CD-ROM and online as the World Ocean Database by US-NODC/WDC-A. However, there is a large amount of data still in manuscript form in the WESTPAC region.

The 16th Session of the IOC Committee on International Oceanographic Data and Information Exchange (IODE-XVI), held in Lisbon, Portugal in November 2000, adopted to promote the GODAR project in the WESTPAC region (GODAR-WESTPAC).

In order to start the project and to succeed, it is important to establish cooperation between the member states and related organizations and to get a common sense. Therefore, JODC held the International Workshop for GODAR-WESTPAC at Japan Hydrographic Department in Tokyo, Japan from March 5-7, 2002 with support from the Ministry of Land Infrastructure & Transport in Japan.

More than 40 persons from 12 countries participated in this workshop. The participants' list is shown in Annex I, and also the agenda of the workshop is in Annex II.

The workshop was opened by Dr. Tadahiko Katsura, Director, Japan Oceanographic Data Center, then Dr. Yasuhiro Ganeko, Chief hydrographer of Japan and Dr. Keisuke Taira, chair parson of IOC/WESTPAC made a welcome address, opened the workshop. Mr. Sydney Levitus introduced the over all of GODAR project, then Dr. Toshiro Saino, Nagoya University, he is a member of Joint Global Oceanographic Flux Study (JGOFS) Science Steering Committee, gave a keynote speech on the Scientific Needs from the Carbon Cycle Study in the Ocean, and also Dr Toshio Suga, Tohoku University gave a keynote speech from physical oceanography field.

After the representative from the countries and organization reported their oceanographic data management activities, the work plan was discussed based on the draft presented by the delegation of Malaysia at the IODE16 in 2000.

The followings were confirmed at the workshop.

- In the GODAR project, many results have been already obtained since WOD98. GODAR type activity is carried out in many countries in the region.
- On the other hand, many data for GODAR are newly found in the region.
- The importance of historical oceanographic data increase in scientific needs, and the kind of data become a target on the marine science.

From these things, it was recognized that the promotion of the GODAR project in the region is very important. In order to promote the project, it was confirmed that it is based on volunteer spirits in the same way as in the IODE system. And also it is expected to improve the IODE activity in the region through the project. The necessity of caring about the following thing in implementation of the project was proposed.

- From the importance of historical data, we should positively approach to be opened to the public at an early stage about the data currently kept secret from the problem on EEZ or defense.
- It avoids duplication effort for digitization of data.
- Since there are gaps on the technology and knowledge on data management and processing among data centers or the organizations in the region, technical transfer should be taken into consideration in the project.

- The whereabouts information on the data and the information on marine research resources in the region are very important for the work concerning a seeking and rescue of data.
- However, if a researcher is asked for much work or load , it is clear from our experience that we difficult to take cooperation from researcher, so we have to consider about this problem.

Based on the above arguments, the work plan was revised as shown in Annex III.

JODC has established the web site for GODAR-WESTPAC (http:/www.jodc.go.jp/project/GODAR/), and distributed the brochure of GODAR-WESTPC in the region in accordance with the work plan.

Data sets, which will be expected to contribute to GODAR-WESTPAC in Japan, are introduced at the followings,

(1) Faculty of Fisheries, Hokkaido University

Summary : Oceanographic Data, Temperature, Salinity Nutrients, Chlorophyll a and Zooplankton etc. observed by T/S Oshoro-Maru and Hokusei-Maru from 1965 to 2001

Status : This data set will be in available from JODC in FY 2003

(2) Tohoku National Fisheries Research Institute

Summary : 17,000 points of Zoo Plankton Wet Weight data in the North Western Pacific Ocean from 1949 to 1990

Status : Finalized. The data is available from JODC Online Data Service also with CD-ROM.

(3) Faculty of Bio-resources, Mie University

Summary : CTD, XBT and ADCP data obtained by T/S Seisui-Maru

Status : under processing

(4) Ocean Research Institute, University of Tokyo

Summary : 1. Bottle data of preliminary report from 1967 to 2000 observed by R/V Hakuho-Maru
2. STD/CTD printed out record observed by R/V Hakuho-Maru from 1973 to 1988
3. CTD digital data observed by R/V Hakuho-Maru from 1988 to 1999
4. 509 points of Current Meter Data

Status : under processing

(5) National Institute for Environmental Studies

Summary : Environmental Monitoring Data at the coastal area of Japan from 1971 to 1998

Status : This data set will be in available from JODC in FY 2003.

(6) Chiba Prefectural Institute for Environmental Science

Summary : Plankton data in the Tokyo Bay from 1983 to 1994

Status : This data set will be in available from JODC in FY 2003.

(7) National Institute of Advanced Industrial Science and Technology, Chugoku

Summary : Tidal Current observation data in the Seto Inland Sea from 1972 to 1979

Status : under processing

(8) Hiroshima University

Summary: Oceanographic data, Temperature, Salinity, Nutrients etc. observed in the Seto inland Sea from 1983 to 1991.

Status : under planning

(9) Japan Coast Guard

Summary: 1. Oceanographic data, Temperature, Salinity, Nutrients and Current data etc from 1931 to 1947.
2. Tidal Station data at the coastal area of Japan before 1965

Status : Both data sets will be in available from JODC in FY 2003.

1.5 IODE Regional Coordinator for WESTPAC

The system of IODE Regional Coordinator was established mainly for the objectives of promoting the IODE activities and policies in eight regions in the world. The Director of JODC accepted the request from IOC for assumption of the IODE Regional Coordinator for WESTPAC in 1997. The terms of reference for IODE Regional Coordinator have revised at the IODE16 in 2000. The terms of reference for IODE Regional Coordinator are introduced in Annex IV.

The main activity of Regional Coordinator in the year of 2002 was the promotion of GODAR-WESTPAC, and in order to get the support from Australia who unfortunately was not able to participate in the workshop introduced in the paragraph 1.4, JODC staff, Mr. Baba and Mr. Tedokon visited AODC on March 25 and 26, 2002, and requested the support to GODAR-WESTPAC and as well as inspected the situation of data management in AODC. The followings are the outline.

AODC was founded in 1964, and presently it is one of the departments of Div. in Oceanography & Meteorology, under Australian Defense Force's Hydrographic Service.The number of staff in Australian Hydrographic Service is about 100, and it is said that DOM staff are a little less than 20. AODC belongs to DOM, and consists of 7 civilians.

The headquarters of Australian Hydrographic Service is situated at Wollongong, about 100km south of Sydney, and DOM and AODC are located in a dock yard at Potts Point. Potts Point is about 2km away from downtown Sydney, and the dockyard is at the place where Opera House, Harbor Bridge and the entrance of the port are visible. However, as it is the dockyard of the navy, the security is strict, and the permit is necessary to go inside.

As AODC belongs to the navy, they put priority to navy works rather than the activities for IODE, etc. It is said that the data AODC handles mainly process XBT data. Others are speed of sound, and bottom quality data, and the data relating to naval activity is the main.

XBT data of about 2000 per year are received digitally from 14 navy vessels, and it is said that these data are transmitted in IGOSS/BATHY message. There are 6 survey vessels in the navy, but AODC doesn't handle depth sounding data, CTD data nor ADCP data, and tidal and water depth data are surveyed by Hydrographic Department, and marine biology data, etc. are treated by CSRIO.

The information says that the organizations that are actually performing oceanographic survey in Australia are CSRIO, Meteorology Department and the navy, and the surveys by Universities with their own survey ship are seldom. As for the cooperation for oceanographic data management around Australia, there used to be cooperation with New Zealand in personal and information exchange at the navy base, but it looks like there is almost none nowadays.

AODC have produced a manual to support XBT observation by navy vessels. It gives case studies for XBT observation what sort of survey records are errors, and about the causes of these errors whereas the error is caused by wire's stretch or snapping, or is caused by hitting the bottom, etc. They have informed each vessel about the results of the data quality control, which data is good or not, along with the clarification.

The QC software for XBT developed by AODC is available at AODC web site along with its manual. (http://www.aodc.gov.au/)

The data management system in AODC is adapting the Oracle as its database system, and is proceeding to introduce XML, too. It is said that XML function in Oracle is possible to automatically convert to Marine XML, and in QC software, the output can be stored in XML as well.

For other products, they are proceeding to the development of data providing system of information such as bottom sediment and water temperature, etc. base on GIS software, Arc/Info.

Presently, the data center in each nation is performing the quality control using its own QC

software, it is one problem in the data exchange. In securing the data compatibility, Marine QC is considered to be the useful measure. Both members have had the common recognition of the need to develop the future world standard QC application with the cooperation of data center in each nation.

2. International Projects / Meetings Attended by JODC

2.1 IOC/WESTPAC

The Fifth Session of IOC Sub-Commission for the Western Pacific was held from September 9 to 13, 2002, in Fremantle, Australia. Delegates from international authorities relating to the 9 member nations of Japan, Australia, People's Republic of China, the Republic of Indonesia, the Republic of Korea, the Federation of Malaysia, the Republic of Philippines, the Kingdom of Thailand and the Socialist Republic of Vietnam participated in the meeting. Moreover, there was participation of observers from Cook Islands, Papua New Guinea and Kiribati.

In the meeting, reform of programs and projects of WESTPAC was mainly discussed. Regarding the data exchange and Global Ocean Observing System (GOOS), the following issues were discussed.

(1) International Oceanographic Data and Information Exchange

Mr. Sato of JODC reported the activities of Responsible National Oceanographic Data Center for WESTPAC (RNODC-WESTPAC) after the last session. He also reported the International Conference on the International Oceanographic Data & Information Exchange in the Western Pacific (ICIWP'99) held in Malaysia in 1999 based on the resolution of the 4th session of IOC Sub-Commission for the Western Pacific, and the GODAR-WESTPAC (Global Oceanographic Data Archeology & Rescue project in the Western Pacific region) international workshop held in Tokyo in March 2002.

And, Mr. Kuijper, the Technical Secretary of IOC/WESTPAC, introduced ODINAFRICA（Ocean Data and Information Network for AFRICA project at the scientific seminar. He noted its excellent achievements, for example, many NODCs established in various African nations, training programs, and etc. There was a remark that WESTPAC should also pursue the similar project, but no concrete discussion took place, as it was difficult to raise the budget to realize the project.

(2) North-East Asia Regional GOOS (NEAR-GOOS)

Dr. Dong-Young Lee, the chairperson of NEAR-GOOS Coordinating Committee reported the NEAR-GOOS activities after the last session of WESTPAC, and explained that the mid-term strategy plan of NEAR-GOOS in coming 5 years was being drafted. The activities of NEAR-GOOS were focused on the establishment of the regional data management and exchange system, especially, the Regional Real Time DataBase (RRTDB) operated by Japan Meteorological Agency and the Regional Delayed Mode DataBase (RDMDB) operated by JODC. But, in future, NEAR-GOOS will expand its activities into the monitoring and the ocean conditions forecasting by data assimilation, which will be the core part of the strategy plan. The present Terms of Reference of the Coordinating Committee are limited to the data management and exchange. In order to respond to the expanded activities according to the strategy plan, it is necessary to the Terms of Reference of the Coordinating Committee. The IOC Sub-Commission for the Western Pacific recommended to give a mandate to the Coordinating Committee to amend its Terms of Reference at its annual meetings as the need arises.

The Technical Secretary reported that the seventh session of NEAR-GOOS Coordination Committee was scheduled to take part in Vladivostok, Russian Federation, during 2nd - 4th November 2002, where the strategy plan and the terms of reference would be discussed. Moreover, He reported that the Democratic People's Republic of Korea was declaring the participation as an observer, aside from 4 member countries, Japan, China, the Republic of Korea, and the Russian Federation.

(3) South-East Asia GOOS (SEA GOOS)

First Admiral Mohd Rasip bin Hassan from Malaysia reported the activities SEAGOOS, for example, SEAGOOS First Implementation Planning Workshop at the Fifth IOC/WESTPAC Scientific Symposium 2001.

A small ad hoc sessional working group was set up to discuss the promotion of SEAGOOS. Based on its discussion, the IOC Sub-Commission for the Western Pacific recommended to established the SEAGOOS Coordination Committee, and the its terms of reference was decided.

At the last of the session, the new chairperson was elected. Dr. Hyung-tack Huh succeeded Dr. Keisuke Taira as the chairperson. And, it was decided that the next session was to be held in Vietnam in 2005.

2.2 North-East Asian Regional GOOS (NEAR-GOOS)

NEAR-GOOS is a regional project of GOOS in the North-East Asian Region, implemented by Japan, the People's Republic of China, the Republic of Korea and the Russian Federation as a WESTPAC activity. The goals of the NEAR-GOOS are as follows:

i. to improve ocean services in the region;
ii. to provide data and information useful in the mitigation of the effects of natural disasters caused by waves, storm surges, and sea ice;
iii. to increase the efficiency of fishing vessels;
iv. to provide information useful in pollution monitoring;
v. to monitor parameters useful to mariculture, particularly regarding harmful algal blooms;
vi. to provide information on the health of the coastal zone for recreation purposes; and
vii. to provide datasets required for data assimilation, modeling, and forecasting.

JODC has operated the NEAR-GOOS Regional Delayed Mode Data Base (RDMDB) since October 1996, based on the recommendation of the first meeting of the NEAR-GOOS Coordinating Committee in 1996. The total volume of data that received from RRTDB and various research institutes collected up until the end of 2002 was about 7,000MB. The kind of data files handled by RDMDB totaled 24 items as of December 2002. The total number of registered organizations was 246(Japan: 156, Other countries: 90). The total number of data files downloaded reached 7,089 files at the end of 2002. NEAR-GOOS RDMDB (http://near-goos1.jodc.go.jp)

The Seventh Session of NEAR-GOOS Coordinating Committee

The 7th NEAR-GOOS Coordinating Committee was held at Pacific Oceanological Institute in Vladivostok, Russian Federation from October 2 to 4, 2002. The Coordinating Committee consists of 2 delegates from each member countries of Japan, China, the Republic of Korea and Russian Federation, but the delegates from People's Republic of China were absent for the meeting this time. There was participation of the Democratic People's Republic of Korea as a observer.

Mr. Sato of JODC reported the present status of operation of the Regional Delayed Mode DataBase. He proposed to abolished the need for registration for downloading data files. The Coordinating Committee approved his proposal. He also reported the implementation condition of the IOC/WESTPAC training course on NEAR-GOOS data management.

In this time, the main topic was the mid-term strategy plan, which was outstanding from the 5th Coordinating Committee held in 2000. At the previous session of the coordinating committee in 2001, in order to consider the mid-term strategy plan, 2 Ad Hoc Working Groups were formed, Ad Hoc Working Group on "Observations and Data Management"and Ad Hoc Working Group on "Data Assimilation, Modeling and Forecasting". Each Working Group had an obligation to submit the

report on each issue, but Ad Hoc Working Group on "Observations and Data Management" did not fulfill its function and did not submit the report. So, the coordinationg committee could not go into the concrete discussion about the plan, based on both reports.

Dr. Dong-Young Lee gave a presentation on the tentative outline covering in detail the critical issues to be considered. Four critical elements of the strategy were introduced, those being: (i) introduction of new parameters; (ii) increase in spatial and temporal coverage; (iii) data products; and (iv) data QA/QC. In according to his presentation, the goal of NEAR-GOOS for coming 5 years was determined as follows. "Development of a basic integrated ocean observing and operational forecasting system in the NEAR-GOOS area, that adheres to the GOOS principles of design and principles of involvement, that builds on the existing data management and exchange mechanism developed in the first phase through the inclusion of additional parameters, increased coverage in space and time, the generation of a generic suite of data products and adequate QA/QC procedures."

Incorporating with the mid-term strategy plan, the Terms of Reference and the composition of the Coordinating Committee were amended. The coordinate committee was prescribed to consist of two members from each member country who should be able to monitor data flow to and from NEAR-GOOS Real Time Data Base and Delayed Mode Data Base. As for the new composition of coordinating committee, while maintaining 2 members from each nation as before, one person preferably comes from the operational meteorological/oceanographic community of each country. The Terms of reference was amended to coordinate the development of applications in operational oceanography, to encourage the increase the volume of quality controlled data available, and to publicise and disseminate NEAR-GOOS plans and information.

At the end of the meeting, the chairman was reelected. Dr. Akulichev of Pacific Oceanographic Institute, Russian Federation, was elected as the chairman, while Dr. Lobanov was elected for acting chairperson to assist him.

2.3 World Ocean Circulation Experiment (WOCE)

Commemorating the conclusion of World Ocean Circulation Experiment (WOCE), which was the international research project started from 1990 with the participation of more than 30 countries, aiming at completing a basic description of the general circulation of the ocean and understanding the actual condition of oceanic heat transport, an international conference, “WOCE and Beyond” was held at San Antonio, Texas, U.S.A. from November 18 to 22, 2002.

There were more than 400 participants and more than 260 poster presentations in this conference. The summarized presentation of each theme by the invited speaker was lectured at the opening of the morning and afternoon session, and poster presentations were held in the afternoon each day for each theme.

Mr. Baba of JODC held the poster presentation about the outcome of Data Assembly Center of Acoustic Doppler Current Profiler (ADCP-DAC) which JODC had jointly been carrying out with University of Hawaii in WOCE project, in the title of "Achievement of WOCE Shipboard ADCP Data Assembly Center". Its co-authors were Mr. Patrick CALDWELL of University of Hawaii and Dr. Yutaka MICHIDA of Ocean Research Institute, University of Tokyo. Through the project, 275 cruises of high-density ADCP data were collected in ADCP-DAC, which are managed in JODC and University of Hawaii, and are contained in WOCE data set with other research data. This WOCE data set of 2 DVD-ROMs, which named "WOCE Global Data Version 3.0", was published by US-NODC and was distributed among the conference participants.

A meeting of WOCE Data Product Committee was held during the conference, where the actions after the completion of WOCE were discussed. Regarding the "An International Research

Programme on Climate Variability and predictability (CLIVAR)", a letter had been sent from the Director of International CLIVAR Project Office to each WOCE-DAC requesting to take the role of DAC for CLIVER after WOCE project was completed, and the actions for this matter were discussed.

JODC expressed the acceptance of request from CLIVAR at the meeting, because JODC is in charge of the Responsible National Oceanographic Data Center for Acoustic Doppler Current Profiler (RNODC for ADCP) under the framework of the International Oceanographic Data and Information Exchange (IODE) promoted by UNESCO/IOC. Among the DACs, National Oceanographic Data Center in each country expressed the continuation similarly with JODC, and British Oceanographic Data Center (BODC) explained to undertake DAC for mooring current data, which was the DAC already closed. DACs in WOCE wished to be passed on to CLIVAR, and it was proposed that the workshop to examine the relationship with CLIVAR to be held after the Scientific Steering Group (SSG) meeting of CLIVAR scheduled in the next year.

2.4 Joint Global Ocean Flux Study (JGOFS)

The meeting of JGOFS/NPSG (North Pacific Synthesis Group of Joint Global Ocean Flux Study) was held in October 2, 2002, in association with the joint international symposium with SCOR (Scientific Committee of International Oceanographic Research) and with Autumn General Assembly of the Oceanographic Society of Japan. About 20 domestic JGOFS related researchers and NPSG committee members attended the meeting. After Prof. Saino of Nagoya University reported JGOFS SSC (Scientific Steering Committee) held in Chili recently, the discussions were made about the special issue of Journal of Oceanography and the publication of the dataset.

Regarding the schedule for the dataset, when JODC proposed the draft of dataset composition and the publication by end of March 2004, there arose issues of data composing and time schedule in each country. And opinions were proposed as such that Japan to present the draft version of the composed data in Open Conference of JGOFS to be held at Washington, DC, USA in May, 2003, and after seeing the result, other countries data would be composed.

2.5 North Pacific Marine Science Organization (PICES)

The 11th annual meeting of North Pacific Ocean Scientific Organization (PICES) held in Qingtao, China in October 18 to 26, 2002. There were participants of around 350 for this meeting, and reelection of the chairman and the vice-chairman was held. Dr. Vera Alexander of University of Alaska, USA was elected for Chairman, and Mr. Kobayashi, Councilor of Japan Fisheries Agency for Multiplication Promotion Department was elected for Vice Chairman. Moreover, this year's Wooster award, an award for an oceanographic researcher who contributed to the oceanographic development in the region of PICES, was given to Dr. Nagata of Marine Information Research Center (MIRC), Japan Hydrographic Association.

Mr. Baba of JODC participated in the meeting of Technical Committee of Data Exchange (TCODE) on behalf of Mr. Sato who is a committee member. Dr. Igor Shevchenko chaired the meeting. First of all, the Chairperson introduced revised TCODE Webpage (http://tcode.tinro.ru/). It was discussed that how to cooperate together and realize to provide the latest information and to share them through the Webpages, and SharePoint was introduced the useful tool.

Dr. Robin Brown reported the result of PICES GLOBEC Data Management Workshop held at this PICES annual meeting prior to TCODE Committee. According to the report from data manager of GLOBEC International Project Office, as they were proceeding the revision work of activity reports from each country, sometimes delegate of each nation was not so responsive, and there are countries where the person in charge for GLOBEC related project was not clear. Therefore, it was concluded

that TCODE would cooperate in revising the activity report and collecting metadata.

Dr. Robin Brown reported result of Work Group on Biogeochemical Data Integration and Synthesis (WG17). And, then, Dr. Suzuki of MIRC, who was the member of WG17, introduced the database on inventory of CO2 related substance study and survey cruises in PICES area (http://picnic.pices.jp/), and the Web page (http://wg17.pices.jp/) of the Work Group. So far, information on around 400 cruises was stored in the database, and it was planned to make the actual data retrievable in future. But, because the information currently registered was only from Japan, Canada and USA, it was concluded that TCODE would also cooperate in collecting information from other PICES member countries. Moreover, WG17 was planning to set up a policy on observation and data report of CO2 related substance, and it was indicated that these would contribute to the management and exchange of CO2 related data in PICES.

In the report on data management activity in each PICES member country, China notified that the delegate from National Marine Data and Information Service (NMDIS) had replaced by Dr. Lin, and introduced the activities of NMDIS. The Republic of Korea introduced the convenience of availability of oceanographic data via Internet, which were stored in main Oceanographic research institute.

Russian Federation announced that, with the support from PICES, the Pacific Oceanological Institute (POI) had finished compiling "Oceanographic Atlas of the Bering Sea, Okhotsk Sea and Japan Sea" into CD-ROM. This CD-ROM contains the figures and tables based on the statistical process result and analyses by ocean survey in Okhotsk Sea. The ESIMO, the ocean information system via Internet (http://www.oceaninfo.ru), was also introduced by using a brochure. It was explained that information in Russian was only available in ESIMO so far, but the main maritime organization in Russia were networked, enabling to obtain information on various oceanographic matters via Internet.

Japan Fishery Agency reported that, as for the oceanographic data obtained by institutes, the physical parameters were open to the public through JODC, but it was not yet decided about the release of biological data. JODC presented the outline of Global Oceanographic Data Archaeology and Rescue Project in the Western Pacific (GODAR-WESTPAC), which was carried out within the framework of Intergovernmental Oceanographic Committee (IOC), as the 5-year plan from 2002.

There were 15 applicants for electronic poster session, but because the venue had been changed on the day due to the coordination with other poster sessions, it became impossible to make the presentation via Internet; therefore, JODC had changed the scheduled presentation of "introduction of on-line information providing service" to "introduction of GODAR-WESTPAC".

The next PICES annual meeting is scheduled to take part in Seoul from October 10 to 18, 2003, with the theme of “Human dimensions of ecosystem variability”, and TCODE electronic presentation session will take up GIS as its theme.

2.6 Intergovernmental Working Group on IOC Oceanographic Data Exchange Policy

The Second Session of the Intergovernmental Working Group on IOC Oceanographic Data Exchange Policy was held at UNESCO Headquarters, Paris, France between 17 and 18 June 2002. Dr. Michida, Ocean Research Institute, University of Tokyo attended this session from Japan. The Meeting agreed on a draft policy for submission to the 22nd Session of the IOC Assembly. Basically, the former IOC data exchange policy, Free and full open sharing was kept in the draft policy. Detail of the draft policy, which was decided at the session, is introduced in Annex V.

3. RNODC's Activities under the Charge of the JODC

3.1 RNODC for WESTPAC

1) Status of CSR and Data Management

The major activities of JODC are the collection and archiving of CSR (Cruise Summary Report of IODE, ROSCOP's third edition), and data from the beginning of the WESTPAC program in 1979.

The terms of reference for RNODC-WESTPAC are shown in Annex VI.

The CSRs received by JODC in 2002 are shown in Table 1.

Number of Archived Data in the WEATPAC region is shown in Table 2.

The WESTPAC region was referred as from 100 to 180 degree of longitude for the North Hemisphere and the area enclosed by from 110 to 230 degree of longitude and from 0 to 30 degree of latitude in the South Hemisphere, here.

Table 1 Inventory of CSR Received by JODC in 2002

AGENCY	SHIP	AREA	PERIOD	DATA TYPE
JHOD	KAIYO	North Pacific Ocean	2002/07/03-2002/07/08	H
JHOD	TAKUYO	North Pacific Ocean	2002/06/06-2002/06/11	D,H
JHOD	SHOYO	Philippine Sea	2002/04/18-2002/05/09	G
HD,JCG	KAIYO	East China Sea	2001/05/05-2001/06/04	
HD,JCG	MEIYO	North Pacific Ocean, East China Sea, Japan Sea, Sea of Okhotsk.	2001/06/15-2001/07/16	D,G,H,P
HD,JCG	TAKUYO	North Pacific Ocean, Japan Sea.	2001/08/17-2001/09/12	D,G,H,P
HD,JCG	KAIYO	North Pacific Ocean	2001/12/05-2001/12/05	G,H
HD,JCG	MEIYO	Japan Sea	2001/07/27-2001/08/15	G
HD,JCG	SHOYO	North Pacific Ocean	2001/10/12-2001/11/07	G
HD,JCG	KAIYO	Philippine Sea	2001/11/12-2001/11/25	G
JMA	RYOFU MARU	North Pacific Ocean	2001/04/24-2001/05/28	B,D,G,H,M,P
JMA	RYOFU MARU	North Pacific Ocean, South Pacific Ocean	2001/10/10-2001/11/06	B,D,G,H,M,P
JMA	RYOFU MARU	North Pacific Ocean	2001/06/19-2001/08/02	B,D,G,H,M,P
ORI,UT	TANSEI MARU	North Pacific Ocean	2001/07/23-2001/07/31	
ORI,UT	TANSEI MARU	North Pacific Ocean, Sea of Okhotsk, Japan Sea.	2001/09/12-2001/09/24	B,G,H
ORI,UT	TANSEI MARU	North Pacific Ocean	2001/11/22-2001/12/01	D,H,M
ORI,UT	TANSEI MARU	Japan Sea	2001/09/27-2001/10/08	
MMO,JMA	SEIFU MARU	Japan Sea	2001/11/16-2001/12/06	B,D,G,H,M
MMO,JMA	SEIFU MARU	Japan Sea	2001/10/03-2001/11/01	B,D,G,H,P
MMO,JMA	SEIFU MARU	Japan Sea	2001/06/08-2001/07/31	B,D,G,H,M,P
MMO,JMA	SEIFU MARU	Japan Sea	2001/04/26-2001/05/18	B,D,G,H,M,P
MMO,JMA	SEIFU MARU	Japan sea	2001/01/12-2001/02/26	B,D,G,H,M,P
HD,JCG	TAKUYO	North Pacific Ocean	2002/01/11-2002/01/27	G
HD,JCG	SHOYO	North Pacific Ocean	2002/02/13-2002/03/07	G
JMA	RYOFU MARU	North Pacific Ocean	2002/01/25-2002/02/27	B,D,G,H,M,P
MMO,JMA	KOFU MARU	North Pacific Ocean	2002/04/26-2002/05/18	B,D,H,M,P
FF, NU	KAKUYO MARU	East China Sea	2002/05/20-2002/05/28	B,D,H
ORI,UT	TANSEI MARU	North Pacific Ocean	2002/03/06-2002/03/15	
ORI,UT	TANSEI MARU	East China Sea, Philippine Sea.	2002/04/12-2002/05/02	
ORI,UT	TANSEI MARU	North Pacific Ocean	2002/05/10-2002/05/16	B,H
RIAM,KU	KAKUYO MARU	Japan Sea	2002/06/10-2002/06/28	B,D,H
NFRDI	TAMGU 3	East China Sea	2002/01/31-2002/02/02	B,D,H,M
NFRDI	TAMGU 5	Japan Sea	2002/02/04-2002/02/22	B,D,H,M
NFRDI	INCHON 888	Yellow Sea	2002/02/01-2002/02/05	B,D,H,M

AGENCY	SHIP	AREA	PERIOD	DATA TYPE
NFRDI	TAMGU 1	East China Sea	2002/02/21-2002/02/27	B,D,H,M
NFRDI	TAMGU 3	East China Sea	2002/04/13-2002/04/25	B,D,H,M
NFRDI	TAMGU 5	Japan Sea	2002/04/10-2002/04/23	B,D,H,M
NFRDI	INCHON 888	Yellow Sea	2002/04/10-2002/04/19	B,D,H,M
NFRDI	TAMGU 3	East China Sea	2002/05/04-2002/05/13	B,D,H,M
NFRDI	PUSAN 890	Japan Sea	2001/02/05-2001/02/10	G,H,P
NFRDI	PUSAN 890	Japan Sea	2001/05/07-2001/05/11	G,H,P
NFRDI	PUSAN 890	Japan Sea	2001/08/06-2001/08/11	G,H,P
NFRDI	PUSAN 890	Japan Sea	2001/11/07-2001/11/12	G,H,P
NFRDI	KANGWON 866	Japan Sea	2001/02/12-2001/02/17	B,G,H,P
NFRDI	TAMGU 6	Japan Sea	2001/05/17-2001/05/21	B,G,H,P
NFRDI	TAMGU 6	Japan Sea	2001/08/09-2001/08/12	B,G,H,P
NFRDI	TAMGU 6	Japan Sea	2001/11/07-2001/11/12	B,G,H,P
NFRDI	TAMGU 6	Japan Sea	2001/02/05-2001/02/07	B,G,H,P
NFRDI	TAMGU 6	Japan Sea	2001/05/14-2001/05/17	B,G,H,M,P
NFRDI	TAMGU 6	Japan Sea	2001/08/06-2001/08/09	B,G,H,P
NFRDI	TAMGU 6	Japan Sea	2001/11/08-2001/11/11	B,G,H,P
NFRDI	CHONNAM 872	Yellow Sea	2001/02/20-2001/02/22	B,G,H,P
NFRDI	CHONNAM 872	Yellow Sea	2001/05/07-2001/05/12	B,G,H,P
NFRDI	CHONNAM 872	Yellow Sea	2001/08/03-2001/08/06	B,G,H,P
NFRDI	CHONNAM 872	Yellow Sea	2001/11/07-2001/11/10	B,G,H,P
NFRDI	KYUNGNAM 871	Japan Sea	2001/02/07-2001/02/12	B,G,H,P
NFRDI	KYUNGNAM 871	Japan Sea	2001/05/03-2001/05/04	B,G,H,P
NFRDI	KYUNGNAM 871	Japan Sea	2001/08/01-2001/08/02	B,G,H,P
NFRDI	KYUNGNAM 871	Japan Sea	2001/11/14-2001/11/15	B,G,H,P
NFRDI	JEJU 869	Japan Sea	2001/02/05-2001/02/06	G,H,P
NFRDI	JEJU 869	Japan Sea	2001/05/07-2001/05/09	
NFRDI	JEJU 869	Japan Sea	2001/08/02-2001/08/04	G,H,P
NFRDI	JEJU 869	Japan Sea	2001/11/08-2001/11/10	G,H,P
NFRDI	CHONNAM 858	Japan Sea	2001/02/05-2001/02/10	G,H,P
NFRDI	CHONNAM 858	Japan Sea	2001/05/07-2001/05/11	G,H,P
NFRDI	CHONNAM 858	Japan Sea	2001/08/02-2001/08/06	G,H,P
NFRDI	CHONNAM 858	Japan Sea	2001/11/11-2001/11/16	G,H,P
NFRDI	TAMGU 2	Yellow Sea	2001/02/08-2001/02/14	G,H,P
NFRDI	TAMGU 2	Yellow Sea	2001/05/07-2001/05/13	G,H,P
NFRDI	TAMGU 2	Yellow Sea	2001/08/06-2001/08/12	G,H,P
NFRDI	TAMGU 2	Yellow Sea	2001/11/06-2001/11/12	G,H,P
NFRDI	JEONBUK 868	Yellow Sea	2001/02/13-2001/02/17	G,H,P
NFRDI	JEONBUK 868	Yellow Sea	2001/05/07-2001/05/09	G,H,P
NFRDI	JEONBUK 868	Yellow Sea	2001/08/08-2001/08/10	G,H,P
NFRDI	JEONBUK 868	Yellow Sea	2001/11/07-2001/11/09	G,H,P
NFRDI	BUSAN 879	Japan Sea	2001/02/13-2001/02/16	B,H
NFRDI	BUSAN 870	Japan sea	2001/02/13-2001/02/16	B,H
NFRDI	BUSAN 870	Japan Sea	2001/04/17-2001/04/21	B,H
NFRDI	BUSAN 870	Japan Sea	2001/05/15-2001/05/19	B,H
NFRDI	BUSAN 870	Japan Sea	2001/06/18-2001/06/22	B,H
NFRDI	BUSAN 870	Japan Sea	2001/06/26-2001/06/28	B,H
NFRDI	BUSAN 870	Japan Sea	2001/07/18-2001/07/22	B,H
NFRDI	BUSAN 890	Japan Sea	2001/07/30-2001/08/02	B,H
NFRDI	BUSAN 870	Japan Sea	2001/08/14-2001/08/16	B,H
NFRDI	BUSAN 890	Japan Sea.	2001/08/27-2001/08/30	B,H
NFRDI	BUSAN 870	Japan Sea	2001/09/19-2001/09/24	B,H
NFRDI	BUSAN 870	Japan Sea	2001/10/16-2001/10/20	B,H

AGENCY	SHIP	AREA	PERIOD	DATA TYPE
NFRDI	BUSAN 870	Japan Sea	2001/11/13-2001/11/16	B,H
NFRDI	TAMGU 1	Japan Sea, Yellow Sea	2001/03/08-2001/03/27	B,H
NFRDI	INCHON 888	Japan Sea, Yellow Sea.	2001/10/15-2001/10/27	B,H
NFRDI	TAMGU 3	Yellow Sea	2001/04/18-2001/05/17	B
NFRDI	TAMGU 3	Yellow Sea	2001/11/06-2001/11/26	B
NFRDI	BUSAN 890	Japan Sea	2001/04/25-2001/04/27	B,H
NFRDI	BUSAN 890	Japan Sea.	2001/03/28-2001/03/30	B,H
NFRDI	BUSAN 890	Japan Sea	2001/06/20-2001/06/22	B,H
NFRDI	BUSAN 890	Japan Sea	2001/07/10-2001/07/12	B,H
NFRDI	TAMGU 1	Indian Ocean	2001/05/15-2001/10/10	B,G,H
NORI	DONGHAERO	Japan Sea	2001/04/09-2001/05/20	
NORI	WHANG HAERO	Yellow Sea	2001/04/02-2001/09/03	G
NORI	BADARO 3	Yellow Sea	2001/04/02-2001/05/16	D
NORI	BADARO 3	Yellow Sea	2001/08/01-2001/11/14	D
NORI	BADARO 3	East China Sea	2001/05/21-2001/06/05	D
NORI	NAMAERO	East China Sea	2001/04/01-2001/07/15	G
NORI		Japan Sea	2001/04/27-2001/08/26	D
NORI		Yellow Sea	2001/04/30-2001/11/29	D
NORI	HAE YANG 2000	Japan Sea	2001/12/01-2001/12/20	D,H,M
NORI	BADARO 2	Japan Sea	2001/10/04-2001/11/03	D,H,M
NORI	BADARO 2	Japan Sea	2001/08/01-2001/11/05	D,H,M
NORI	BADARO 2	Japan Sea	2001/07/01-2001/07/30	D,H,M,MO
NORI	BADARO 2	Japan Sea	2001/04/02-2001/04/30	D,H,M
NORI	HAE YANG 2000	Japan Sea	2001/04/08-2001/04/30	D,H,M
NORI	HAE YANG 2000	Japan Sea	2001/04/08-2001/04/30	
NMPA	INCHON 888	Yellow Sea	2001/02/13-2001/02/23	B,H,P
NMPA	TAMGU 5	Japan Sea	2001/02/22-2001/02/24	B,H,P
NMPA	PREVENTION SHIP 19	Yellow Sea	2001/05/16-2001/05/18	B,H,P
NMPA	PREVENTION SHIP 16	Japan Sea	2001/05/25-2001/05/28	B,H,P
NMPA	INCHON 888V	Yellow Sea	2001/08/01-2001/08/10	B,G,H,P
NMPA	TAMGU 5	Japan Sea	2001/08/23-2001/08/31	B,H,P
NMPA	PREVENTION SHIP 19	Yellow Sea	2001/11/14-2001/11/16	B,H,P
NMPA	PREVENTION SHIP 16	Japan Sea	2001/11/20-2001/11/23	B,H,P
KORDI	EARDO	Yellow Sea	2001/01/30-2001/02/02	B,D,H
KORDI	OLYMPIC 5	Japan Sea	2001/02/13-2001/02/17	
KORDI		Japan Sea	2001/02/13-2001/02/17	B,G,H
KORDI	EARDO	Japan Sea	2001/04/10-2001/04/24	D,H
KORDI		Japan Sea	2001/04/11-2001/12/06	D
KORDI	EARDO	Yellow Sea	2001/04/27-2001/04/28	H
KORDI	ONNURI	North Pacific and South Pacific Ocean, East China Sea.	2001/05/02-2001/05/29	B,D,G,H
KORDI		Japan Sea	2001/05/15-2001/05/15	B,G,H
KORDI		Japan Sea	2001/05/16-2001/05/17	B,G,H
KORDI	OLYMPIC 5	Japan Sea	2001/05/18-2001/05/19	
KORDI	EARDO	Yellow Sea	2001/05/21-2001/05/29	G
KORDI	ONNURI	North Pacific and South Pacific Ocean	2001/05/31-2001/06/12	H
KORDI	EARDO	Yellow Sea	2001/06/15-2001/06/30	G
KORDI		Japan Sea	2001/06/26-2001/06/29	B,G,H,P

AGENCY	SHIP	AREA	PERIOD	DATA TYPE
KORDI	FARDO	Japan Sea	2001/07/07-2001/07/10	
KORDI	OLYMPIC 5	Japan Sea	2001/07/19-2001/07/19	B,H
KORDI		Japan Sea	2001/07/19-2001/07/20	B,D,G,H
KORDI	EARDO	Yellow Sea	2001/08/10-2001/08/15	B,D,H
KORDI	HANUL	Yellow Sea	2001/08/17-2001/08/17	B,H,M,P
KORDI		Japan Sea	2001/08/27-2001/09/02	
KORDI		Yellow Sea	2001/08/29-2001/09/02	B
KORDI	TAESUNG	Yellow Sea	2001/08/30-2001/08/30	B,H
KORDI	OLYMPIC 5	Japan Sea	2001/09/04-2001/09/08	B
KORDI	EARDO	Japan Sea	2001/11/10-2001/11/13	G
KORDI	OLYMPIC 5	Japan Sea	2001/09/11-2001/09/17	G
KORDI		Japan Sea	2001/09/19-2001/09/20	D,P
KORDI		Japan Sea	2001/09/29-2001/10/03	P
KORDI	EARDO	Japan Sea	2001/10/12-2001/10/21	D,H
KORDI	TAESUNG	Yellow Sea	2001/10/18-2001/10/18	B,H
KORDI		Japan Sea	2001/10/19-2001/10/26	B,H
KORDI		Yellow Sea	2001/10/24-2001/10/24	B,H,M,P
KORDI	OLYMPIC 5	Japan Sea	2001/10/30-2001/10/30	B,H
KORDI		Yellow Sea	2001/11/04-2001/11/05	D,P
KORDI		Japan Sea	2001/11/05-2001/11/07	B,G,H
KORDI		Japan Sea	2001/11/17-2001/11/20	D,P
KORDI		Japan Sea	2001/11/19-2001/11/19	H,P
KORDI	YUZHMORGEOLOGIYA	South Atlantic Ocean, South Pacific Ocean	2001/11/28-2002/01/05	B,D,H,P
KORDI	EARDO	Yellow Sea	2001/12/10-2001/12/21	B,D,H
KORDI		Japan Sea	2001/12/10-2001/12/17	B,H
KORDI	YUZHMORGEOLOGIYA	South Atlantic Ocean	2001/12/15-2001/12/21	G
MFHS	AICHI MARU	East Pacific Ocean	2002/04/---2002/07/--	
JMA	RYOFU MARU	North Pacific Ocean and Philippine Sea	2002/06/20-2002/08/05	B,D,G,H,M,P
RIAM,KU	NAGASAKI MARU	East china sea, Shimabara bay	2002/04/22-2002/04/26	H,b
RIAM,KU	NAGASAKI MARU	East china sea	2002/05/08-2002/05/16	D,H,d
NFRDI	TAMGU 3	East China Sea	2001/12/05-2001/12/16	B,D,H,M
NFRDI	TAMGU 5	Japan Sea	2001/12/07-2001/12/23	B,D,H,M
NFRDI	INCHON 888	Yellow Sea	2001/12/23-2001/12/28	B,D,H,M
NFRDI	TAMGU 3	East China Sea	2002/06/18-2002/06/26	B,D,H,M
NFRDI	TAMGU 5	Japan Sea.	2002/06/03-2002/06/09	B,D,H,M
NFRDI	INCHON 888	Yellow Sea	2002/06/03-2002/06/09	B,D,H,M
HMO, JMA	KOFU MARU	North Pacific Ocean	2002/06/24-2002/08/05	B,D,H,M,P
HMO, JMA	CHOFU MARU	East China Sea, Philippine Sea.	1997/04/23-1997/05/19	B,D,H,M,P
NFRDI	TAMGU 3	East China Sea	2002/08/01-2002/08/09	B,D,H,M
NFRDI	TAMGU 5	Japan Sea	2002/08/13-2002/08/22	B,D,H,M
NFRDI	INCHON 888	Yellow Sea	2002/08/09-2002/08/17	B,D,H,M
NFRDI	TAMGU 3	East China Sea	2002/08/14-2002/08/16	B,D,H,M
NFRDI	TAMGU 3	East China Sea	2001/10/12-2001/10/22	B,D,H,M
NFRDI	TAMGU 5	Japan Sea	2001/10/15-2001/10/25	B,D,H,M
NFRDI	INCHON 888	Yellow Sea	2001/10/13-2001/10/20	B,D,H,M
NFRDI	TAMGU 3	East China Sea	2001/11/08-2001/11/18	B,D,H,M

Table 2 Number of Archived Data in the WESTPAC Region

YEAR	SD	STD	CTD	XBT	DBT	AXBT	BT	XCTD	GEK	DRIFT
1979	7,580	47	2,721	9,417	672	0	17,256	0	5,222	134
1980	8,536	643	2,299	12,645	2,256	0	17,064	0	6,215	190
1981	7,485	120	3,080	10,289	2,336	1,231	16,844	0	5,982	246
1982	8,552	214	2,966	12,105	2,869	509	15,130	0	6,035	79
1983	8,399	368	4,488	13,054	3,067	824	13,347	0	6,016	129
1984	6,749	3	4,949	13,480	3,853	860	15,822	0	7,059	84
1985	5,861	463	5,758	16,877	3,511	1,059	12,816	0	5,471	96
1986	8,681	311	5,777	18,918	2,363	1,502	11,657	0	5,793	30
1987	10,028	231	7,043	19,522	1,700	1,272	13,042	0	4,970	6
1988	10,147	0	9,683	20,930	903	1,177	9,904	0	2,811	255
1989	8,624	0	10,919	19,461	475	1,323	7,797	0	1,624	320
1990	8,831	320	11,953	24,414	1,098	1,305	6,299	0	871	319
1991	6,144	0	14,963	25,047	1,405	1,509	1,825	0	841	354
1992	4,231	105	15,861	26,777	18	1,199	1,146	0	216	230
1993	3,399	119	14,595	40,030	1,313	1,160	1,420	0	152	19
1994	1,182	128	1,996	30,887	109	0	7,763	0	24	0
1995	1,030	0	1,780	41,193	113	2	4,157	0	97	0
1996	1,088	0	2,028	31,031	177	31	4,189	0		
1997	1,204	0	1,931	7,051	152	90	4,067	0		
1998	1,058	0	1,703	7,930	147	31	4,286	7		
1999	854	0	1,835	6,291	182	27	4,966	40		
2000	857	0	3,157	6,863	155	13	5,587	48		
2001	834	0	3,154	8,361	146	85	5,876	77		
2002	0	0	0	1,078	0	26	0	0		
Total	**121,354**	**3,072**	**134,639**	**423,651**	**29,020**	**15,235**	**202,260**	**172**	**59,399**	**2,491**

2) Data Training Course

Japan Oceanographic Data Center (JODC) organizes the IOC/WESTPAC Training Course on NEAR-GOOS Data Management every year, under the auspices of Japan-UNESCO Trust in Fund.

The objective of the training course is to provide personnel currently involved in oceanographic data management in WESTPAC Member States based on concepts of the IODE system and its function, NEAR-GOOS Real Time and Delayed Mode Database, and acquisition, processing and compilation of oceanographic data. The 6th IOC/WESTPAC Training Course on NEAR-GOOS Data Management was held at JODC, 21 October - 1 November 2002. Seven persons participated in the training course, from China, Fiji, Indonesia, Malaysia, the Republic of Korea, the Russian Federation, and Thailand.

In this course, JODC invited lecturers from WDC-A for Oceanography, Ocean Research Institute University of Tokyo, Japan Meteorological Agency, Japan Society for the Promotion of Science, and Marine Information Research Center. Mr. Robert Gelfeld of WDC-A for Oceanography gave lectures on activities of WDC-A, IODE system, and GODAR project. The lectures on biological and chemical data management were given for the first time in the training course.

Participants list and Course program of the training course are introduced in Annex VII and VIII, respectively.

3.2 RNODC for IGOSS

JODC has been acting as RNODC for IGOSS since September 1979 with the USA and Russia.

The terms of reference for RNODC-IGOSS are introduced in Annex IX.

JODC receives BATHY/TESAC data through the GTS (Global Telecommunications System) from JMA (Japan Meteorological Agency), which is one of SOC (Specialized Oceanographic Center), and applies quality control procedures for final archiving.

KODC has regularly submitted the log form of IGOSS BATHY/TESAC, totally 256 sheets of the log sheets were submitted by KODC in 2002. Data Holding Status is shown in Table 3 and Fig. 2.

Table 3 Data Holding Status of IGOSS BATHY/TESAC

YEAR	BATHY	TESAC	YEAR	BATHY	TESAC
1982	22,677	710	1993	35,056	2,153
1983	25,478	5,443	1994	32,720	2,619
1984	22,980	7,068	1995	33,603	2,207
1985	26,079	5,784	1996	28,095	2,170
1986	31,044	5,640	1997	29,621	1,265
1987	40,301	6,580	1998	14,901	4,544
1988	32,245	5,074	1999	13,626	10,244
1989	27,933	4,966	2000	30,423	8,408
1990	30,026	4,947	2001	30,473	25,253
1991	22,728	2,137	2002	26,827	26,385
1992	34,070	1,303			
Total				**590,906**	**134,900**

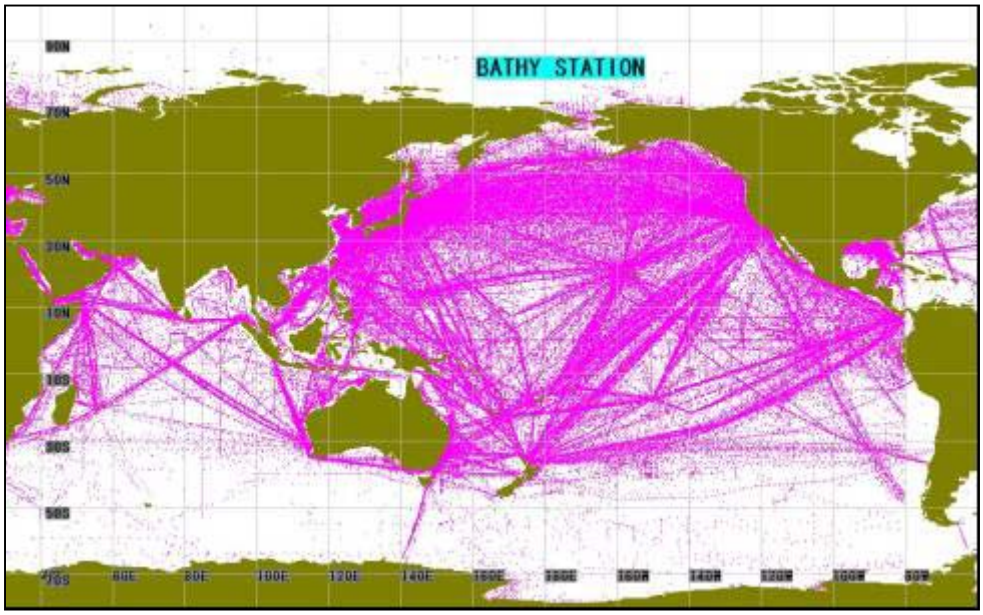


Fig. 2-1 Station Plots for BATHY

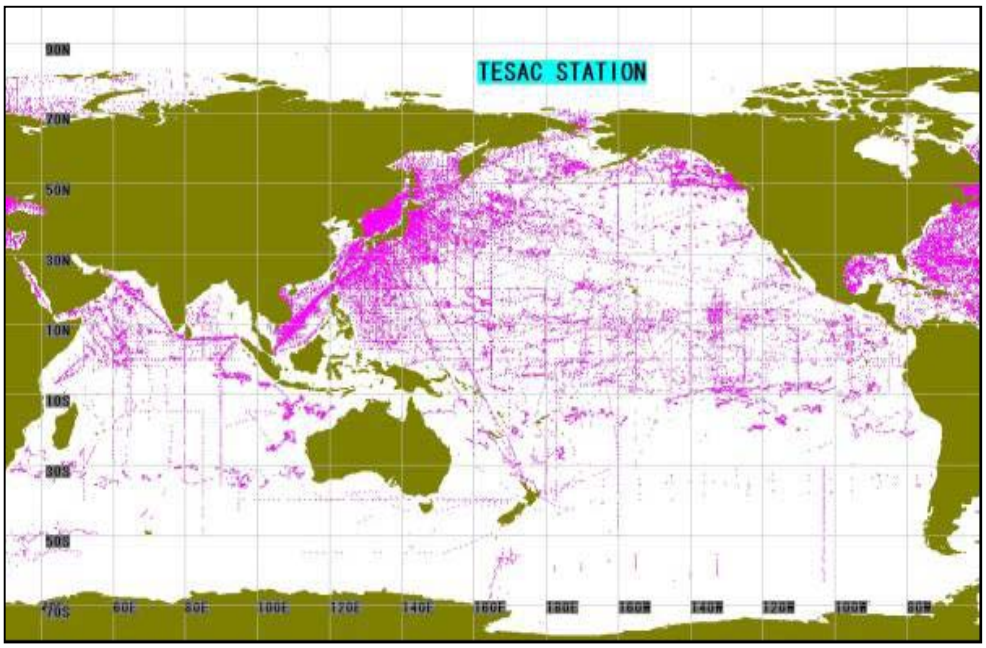


Fig. 2-2 Station Plots for TESAC

3.3 RNODC-MARPOLMON

In response to a recommendation by the United Nations Conference on the Human Environment (Stockholm, 1972), the IOC and WMO agreed to jointly undertake the design, planning, and development of a marine pollution-monitoring program.

As an initial step in this direction, a Pilot Project on Marine Pollution (Petroleum) Monitoring (MAPMOPP) was launched in 1975 within the framework of the Integrated Global Ocean Station System (IGOSS) and was aimed at monitoring petroleum-derived oils.

Bearing in mind the recommendations of the IOC Scientific Committee for the Global Investigation of Pollution in the Marine Environment adopted at its Sixth Session (Paris, 25 September - 1 October 1986) on the regional relevance to marine pollution management activities, RNODC for MARPOLMON have been established in Japan for the WESTPAC region, in the USA for the Caribbean region, and in the Russian Federation for the Atlantic, Mediterranean and Baltic Seas.

The terms of reference for RNODC-MARPOLMON are introduced in Annex X.

The major activities of the JODC are the collection and management of four types of data: oil slicks, tar-ball, beach tar, and hydrocarbon, since 1975. Data holding status is shown in Table 4 and Fig. 3.

With regard to other type of Marine Pollution data, the present holding status of these data in JODC is introduced in Table 5, and the station map of the Cd, Pb and PCB data are indicated as Fig. 4, respectively.

Moreover, JODC received Environmental Monitoring Data at the Coastal Area of Japan from 1971 to 1998 from National Institute for Environmental Studies. The data has been processing by JODC, and will be available in FY2003.

Table 4 Number of Archived Data for MARPOLMON

YEAR	BEACH TAR	TAR BALL	HYDRO CARBO	OIL SLICK
1973	0	328	0	0
1974	0	227	10	1,493
1975	404	1,029	158	16,712
1976	799	1,045	240	16,236
1977	740	730	387	19,683
1978	665	593	380	22,580
1979	676	381	320	14,699
1980	581	519	481	5,988
1981	570	522	409	3,948
1982	588	489	440	1,122
1983	560	603	399	584
1984	588	440	187	277
1985	582	474	300	382
1986	624	565	151	865
1987	638	627	129	1,015
1988	653	513	124	1,492
1989	679	580	87	1,948
1990	650	547	83	1,674
1991	647	481	86	1,286
1992	634	447	71	1,215
1993	618	438	72	991
1994	588	377	62	1,221
1995	583	415	54	1,517
1996	0	238	72	1,413
1997	0	148	88	1,783
1998	0	90	36	2,152
1999	0	95	65	1
Total	**13,067**	**12,941**	**4,891**	**122,277**

Table 5 Number of Data Related Marine Pollution

Data Type	Number	Data Type	Number
COD	4,996	PCB	4,569
NH3-N	8,214	As	4,789
Chl-a	348	Pb	5,731
Phaeo	345	Hg	3,595
TOC	7,188	Total-Hg	10,058
HC	10,711	Cd	15,032

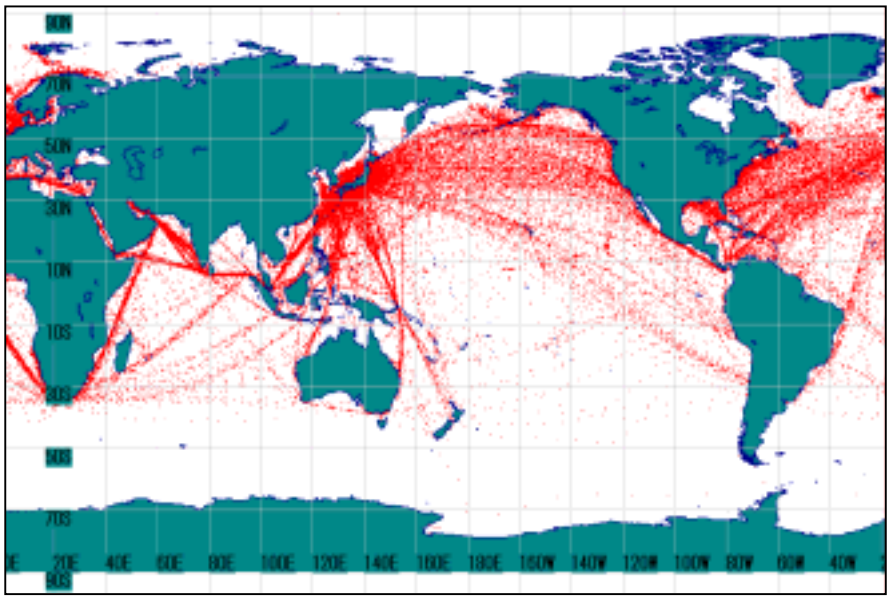


Fig. 3 Station Plots for Oil Slick

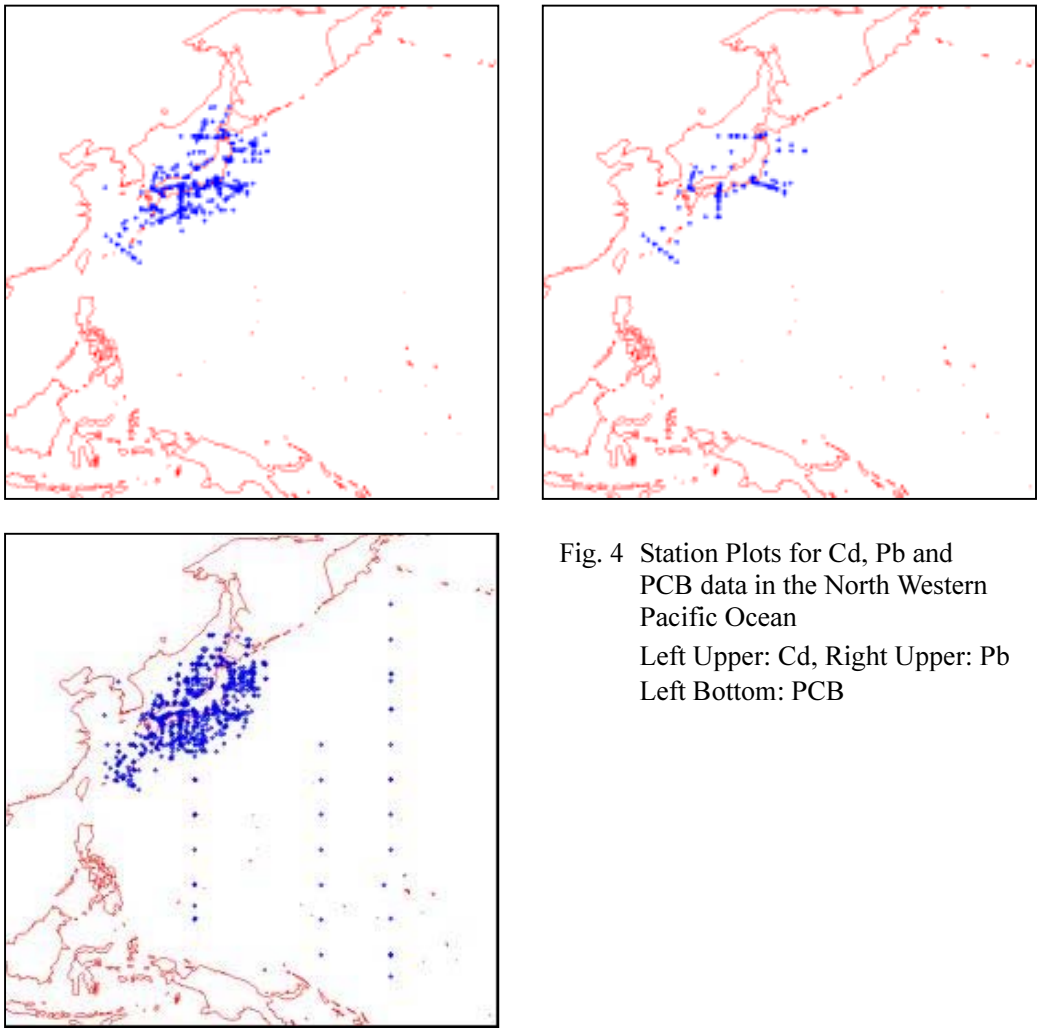


Fig. 4 Station Plots for Cd, Pb and PCB data in the North Western Pacific Ocean
Left Upper: Cd, Right Upper: Pb
Left Bottom: PCB

3.4 RNODC for ADCP

The JODC is RNODC for ADCP since 1991 and World Ocean Circulation Experiment (WOCE) Data Assembly Center (DAC) for Shipboard ADCP in cooperation with the University of Hawaii since 1995.

JODC and Univ. of Hawaii accepted the request from Dr. Howard Cattle, Director of International CLIVAR Project Office to continue the activities of ADCP DAC for the Climate Variability & Predictability (CLIVAR) project, World Climate Research Program (WCRP) after the WOCE project finished.

The terms of reference for RNODC - ADCP are introduced in Annex XI.

The major activities of the JODC are the collection and archiving of data and the development of the methodology of ADCP data management, plus development and usage of the ADCP data management system on the database of the JODC. Data holding status is shown in Table 6 and Fig.5.

Table 6 Number of Archived Data for ADCP

YEAR	Number	YEAR	Number
1985	3,545	1995	315,272
1986	3,024	1996	809,245
1987	4,945	1997	631,398
1988	13,572	1998	555,607
1989	61,289	1999	498,242
1990	73,460	2000	236,496
1991	58,973	2001	140,331
1992	103,309	2002	35,233
1993	128,053		
1994	49,660		
Total			**3,721,654**

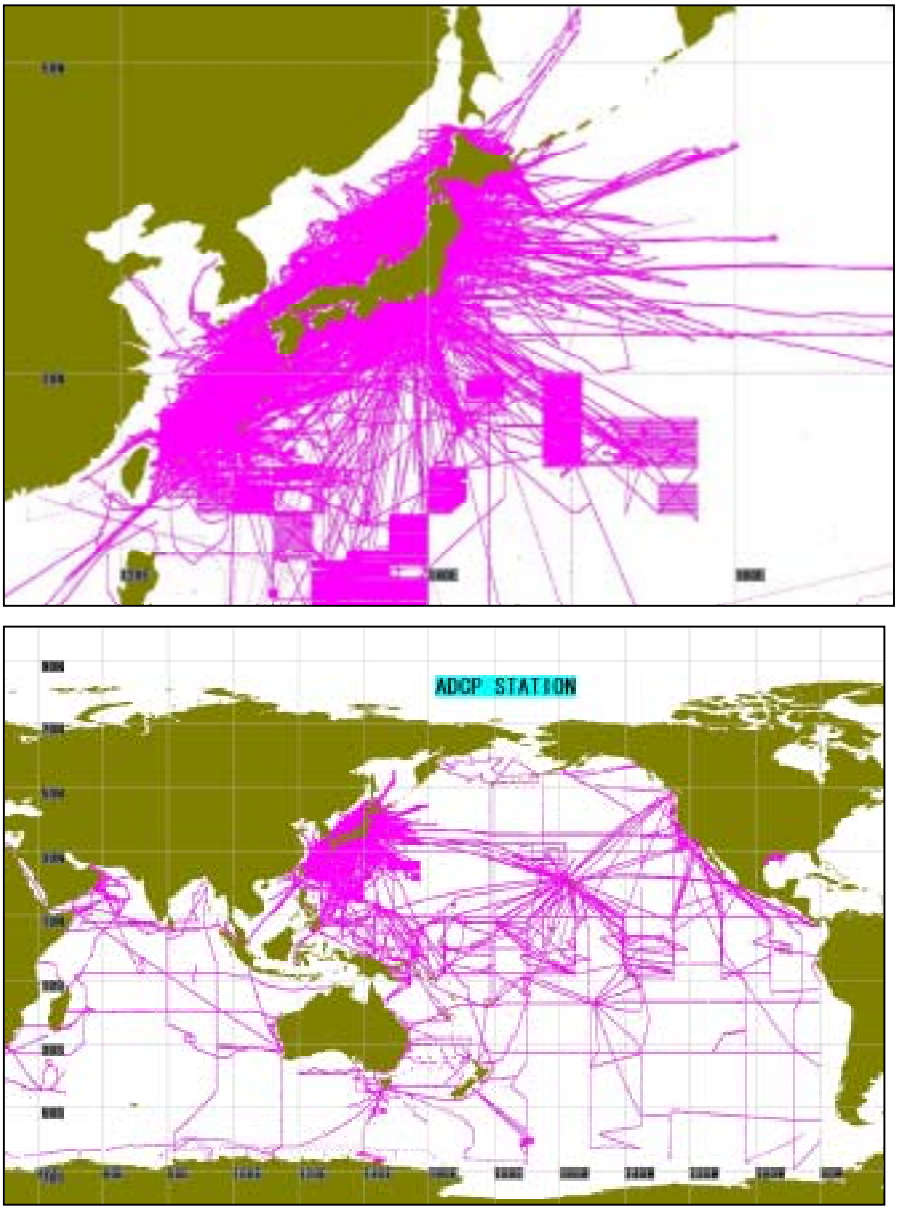


Fig. 5 Station Plots for ADCP
Upper: in the North-Western Pacific
Lower: in the Indian Ocean and the Pacific Ocean

ANNEX I

List of Participants in the International Workshop for GODAR-WESTPAC

CHINA, PEOPLE'S REPUBLIC OF
Prof. Lin Shaohua
Deputy Director-General
National Marine Data & Information Service
State Oceanic Administration (SOA)
93, Liuwei Rd, Hedong District
Tianjin 300171
PEOPLE'S REPUBLIC OF CHINA
Tel: +86-22-2401-0803
Fax: +86-22-2401-0820 or 2401-0926
E-mail: shlin@mail.nmdis.gov.cn

FIJI
Ms. Cristelle Pratt
Manager of Ocean Affairs
SOPAC Secretariat
Private Mail Bag, GPO
Suva,
FIJI
Tel: +679-381 377
Fax: +679-370 040 or 384 461
E-mail: cristelle@sopac.org

FRANCE
Dr. Catherine Maillard
Head of SISMER
Centre IFREMER de Brest
BP 70
29280 Plouzane
FRANCE
Tel: +33-2 98 22 42 79
Fax: +33-2 98 22 46 44
E-mail: catherine.maillard@ifremer.fr

INDONESIA
Cdr. Dede Yuliadi
Head of Marine Environment Division
Hydro-Oceanographic Service
Jln. Pantai Kuta V/1 Ancol Timur
Jakarta 14430
INDONESIA
Tel: +62-21-684810 ext 3935
Fax: +62-21-684819
E-mail: infohid@indo.net.id

KOREA, REPUBLIC OF
Dr. Kyu Kui Jung
Researcher
Korea Oceanographic Data Centre
National Fisheries Research & Development Institute
408-1 Sirang-ri, Gijang-eup, Gijang-gun,
Busan, 619-902
KOREA, REPUBLIC OF
Tel: +82-51-720-2231
Fax: +82-51-720-2225
E-mail: kkjung@nfrdi.re.kr

JAPAN
Mr. Norio Baba
Research Officer,
Japan Oceanographic Data Center
5-3-1, Tsukiji, Chuo-ku,
Tokyo 104-0045
JAPAN
Tel: +81-3-3541-4295
Fax: +81-3-3545-2885
E-mail: norio-baba@nifty.com

Dr. Yasuhiro Ganeko
Director General of Hydrographic Department
Japan Coast Guard
5-3-1, Tsukiji, Chuo-ku,
Tokyo 104-0045
JAPAN
Tel: +81-3-3541-3810
Fax: +81-3-3541-4535
E-mail:

Dr. Shizuo Iwata
Japan Fisheries Information Service Center
Toyomi Suisan Bld. 6F,
4-5 Toyomicho, Chuo-ku,
Tokyo 104-0055
JAPAN
Tel: +81-3-5547-6888
Fax: +81-3-5547-6881
E-mail: siwata@jafic.or.jp

Mr. Shigeru Kasuga
Deputy Director of Administration Division
Hydrographic Department, JCG
5-3-1, Tsukiji, Chuo-ku,
Tokyo 104-0045
JAPAN
Tel: +81-3-3541-3810
Fax: +81-3-3541-4535
E-mail:

Dr. Tadahiko Katsura
Director
Japan Oceanographic Data Center
5-3-1, Tsukiji, Chuo-ku,
Tokyo 104-0045
JAPAN
Tel: +81-3-3541-3818

Fax: +81-3-3545-2885
E-mail: mail@jodc.go.jp

Dr. Kiyoshi Kawasaki
Chief of Ocean Dynamics Section,
National Research Institute of Fisheries Science
12-4, Fukuura 2 chome, Kanazawa-ku, Yokohama
Kanagawa 236-8648
JAPAN
Tel: +81-45-788-7647
Fax: +81-45-788-5001
E-mail: kkawasak@affrc.go.jp

Mr. Hiroshi Kumada
Japan Fisheries Resource Conservation Association
Tokyo Suisan Building 6F,
Toyomi 4-18, Chuo-ku, Tokyo 104-0055
JAPAN
Tel: +81-3-3533-5401
Fax: +81-3-3532-0195
E-mail:

Mr. Yasuhiro Minamoto
Scientific Officer
Office of Marine Prediction,
Climate and Marine Department,
Japan Meteorological Agency
1-3-4 Ote-machi, Chiyoda-ku,
Tokyo 100-8122
JAPAN
Tel: +81-3-3212-8341 ext.5127
Fax: +81-3-3211-3047
E-mail: minamoto@met.kishou.go.jp

Dr. Yutaka Nagata
Director
Marine Infromation Research Center,
Japan Hydrographic Association
Mishima Bldg.5F, 7-15-4 Ginza, Chuo-ku,
104-0061, Tokyo
JAPAN
Tel: +81-3-3248-6668
Fax: +81-3-3248-6661
E-mail: nagata@mirc.jha.or.jp

Mr. Rokuro Nibe
Oceanographic Section 1st,
Japan Maritime Self Defense Force
Nagakura-cho 1-43, Yokosuka,
Kanagawa 237-8515
JAPAN
Tel: +81-468-24-1334 ext.3310
Fax: +81-468-22-1369
E-mail: aswc-kaiyou@ysl.jmsdf.go.jp

Ms. Sachiko Oguma
Researcher
Marine Infromation Research Center,
Japan Hydrographic Association
Mishima Bldg.5F, 7-15-4 Ginza, Chuo-ku,
104-0061, Tokyo
JAPAN
Tel: +81-3-3248-6668
Fax: +81-3-3248-6661
E-mail: oguma@mirc.jha.or.jp

Mr. Hideo. Oosuga
Director of Administration Division.
Hydrographic Department, JCG
5-3-1, Tsukiji, Chuo-ku,
Tokyo 104-0045
JAPAN
Tel: +81-3-3541-3810
Fax: +81-3-3541-4535
E-mail:

Prof. Dr. Toshiro Saino
Hydrosheric Atmospheric Research Center
Nagoya University
Furo-cho, Chikusa-ku,
Nagoya 464-8601
JAPAN
Tel: +81-52-789-3487
Fax: +81-52-789-5508
E-mail: tsaino@ihas.nagoya-u.ac.jp

Mr. Minoru Sasaki
Director of Ocean Survey Division
Hydrographic Department, JCG
5-3-1, Tsukiji, Chuo-ku,
Tokyo 104-0045
JAPAN
Tel: +81-3-3541-3814
Fax: +81-3-3541-3762
E-mail:

Mr. Satoshi Sato
Deputy Director
Japan Oceanographic Data Center
5-3-1, Tsukiji, Chuo-ku,
Tokyo 104-0045
JAPAN
Tel: +81-3-3541-4295
Fax: +81-3-3545-2885
E-mail: sato@jodc.go.jp

Mr. Nobuyuki Shibayama
Assistant Director for Coastal Info. Management
Oceanographic Data & Information Division
Hydrographic Department, JCG
5-3-1, Tsukiji, Chuo-ku,
Tokyo 104-0045

JAPAN
Tel: +81-3-3541-3853
Fax: +81-3-3545-2885
E-mail: nobuyuki-shibayama@kaino.mlit.go.jp

Mr. Tadao Shigemori
Chief of Oceanographic Section 1st,
Japan Maritime Self Defense Force
Nagakura-cho 1-43, Yokosuka,
Kanagawa 237-8515
JAPAN
Tel: +81-468-24-1334 ext.3310
Fax: +81-468-22-1369
E-mail: aswc-kaiyou@ysl.jmsdf.go.jp

Mr. K. Sono
Japan Marine Science & Technology Center
3173-25 Showa-machi, Kanazawa-ku, Yokohama
JAPAN
Tel: +81-45-778-5400
Fax: +81-45-778-5424
E-mail:

Assoc. Prof. Dr. Toshio Suga
Dept. of Geophysics, Graduate School of Science,
Tohoku University
Aoba, Aramaki, Aoba-ku, Sendai
Miyagi 980-8578
JAPAN
Tel: +81-22-217-6527
Fax: +81-22-217-6530
E-mail: suga@pol.geophys.tohoku.ac.jp

Mr. Tsuyoshi Sugiura
Ocean & Earth Division,
Research & Development Bureau,
Ministry of Education, Culture, Sports, Science & Technology
3-2-2 Kasumigaseki, Chiyoda-ku, Tokyo
JAPAN
Tel: +81-3-5253-4143
Fax: +81-3-5253-4147
E-mail: sugiurat@mext.go.jp

Dr. Toru Suzuki
Researcher
Marine Infromation Research Center,
Japan Hydrographic Association
Mishima Bldg.5F, 7-15-4 Ginza, Chuo-ku,
104-0061, Tokyo
JAPAN
Tel: +81-3-3248-6668
Fax: +81-3-3248-6661
E-mail: suzuki@mirc.jha.or.jp

Prof. Dr. Keisuke Taira
Ocean Research Institute,
University of Tokyo
Minamidai 1-15-1, Nakano-ku, Tokyo 164-8639
JAPAN
Tel: +81-3-5351-6417
Fax: +81-3-5351-6418
E-mail: taira@ori.u-tokyo.ac.jp

Mr.Koji Takahashi
Section Chief of Business One Div.,
Japan Fisheries Information Service Center
Toyomi Suisan Bld. 6F,
4-5 Toyomicho, Chuo-ku,
Tokyo 104-0055
JAPAN
Tel: +81-3-5547-6886
Fax: +81-3-5547-6881
E-mail:

Mr. Shin Tani
Head of Continental Shelf Surveys Office,
Ocean Surveys Divison,
Hydrographic Department, JCG
5-3-1, Tsukiji, Chuo-ku,
Tokyo 104-0045
JAPAN
Tel: +81-03-3541-3689
Fax: +81-3-3541-3843
E-mail: stani@jodc.go.jp

Mr. Shigeru Toyoshima
Senior Officer
Japan Oceanographic Data Center
5-3-1, Tsukiji, Chuo-ku,
Tokyo 104-0045
JAPAN
Tel: +81-3-3541-4295
Fax: +81-3-3545-2885
E-mail: toyo@jodc.go.jp

Dr. Toshio Tsuchiya
Manager of Computer and Information Dept.,
Japan Marine Science & Technology Center
3173-25 Showa-machi, Kanazawa-ku, Yokohama
JAPAN
Tel: +81-45-778-5400
Fax: +81-45-778-5424
E-mail: tutiyat@jamstec.go.jp

MALAYSIA
Capt. Yacob bin Ismail
Director General of Hydrography
Navy Headquarters, Ministry of Defense
50634 Kuala Lumpur
MALAYSIA

Tel: +60-3-2071-3157
Fax: +60-3-2698-7972
E-mail: rmnodc@tm.net.my

PHILIPPINES
Mr. Rene G.Eclarino
Chief of Oceanography Division
Coast & Geodetic Survey Department
National Mapping & Resource Information Authority
P.O. Box 1620
421, Barraca St., San Nicolas, Manila
PHILIPPINES
Tel: +63-2-241-3494
Fax: +63-2-242-2090 or 245-0295
E-mail: r_eclarino@hotmail.com

RUSSIA
Dr. Nikolay A.Rykov
Head of Regional Oceanographic Data Center
Far Eastern Regional Hydrometeorological Research Institute
24 Fontannaya Street, Vladiostok 690600
RUSSIA
Tel: +7-423-222-8844
Fax: +7-423-222-7754
E-mail: rodc@online.ru

THAILAND
Dr. Pitan Singhasaneh
Engineer
Geo-Informatics and Space Technology Development Agency
196 Phaholyothin Rd., Chatuchak, Bangkok 10900
THAILAND
Tel: +66-2-940-5515
Fax: +66-2-940-5671
E-mail: pitan@gistda.or.th

U.S.A.
Mr. Sydney Levitus
Director, WDC-A for Oceanography
NODC/NOAA, E/OC5
1315 East West Highway,
Silver Spring, MD 20910-3282
U.S.A.
Tel: +1-301- 713-3294
Fax: +1-301-713-3303
E-mail: Sydney.Levitus@noaa.gov

VIETNAM
Prof. Bui Cong Que
Director of Vietnam National Oceanographic Data Centre, National Center for Natural Science and Technology of Vietnam
Hoang Quoc Viet Str.,
Caugiay, Hanoi
VIETNAM
Tel: +84-4-756-4402
Fax: +84-4-756-1647
E-mail: bcque@hn.vnn.vn

ANNEX II

Agenda of the International Workshop for GODAR-WESTPAC

March 5, 2002; First day of the workshop

1000-1030	Opening Session
1030-1050	Summary of GODAR, Mr. Levitus, USA
1050-1120	Keynote; Scientific Needs from the Carbon Cycle Study in the Ocean, Prof. Dr. Saino, Nagoya Univ., Japan
1120-1150	Keynote; Scientific Needs from the Climate Change Study in the Ocean, Dr. Suga, Tohoku Univ., Japan
1200-1400	Luncheon hosted by Director of JODC
1400-1410	Commemorative Photograph
1410-1440	GODAR-Mediterranean Sea Project and National Activities on Oceanographic Research and Data Management, Dr. Maillard, France
1440-1500	SOPAC Activities on Oceanographic Research and Data Management, Ms. Pratt, Fiji
1500-1520	National Activities on Oceanographic Research and Data Management, Dr. Rykov, Russia
1520-1540	Coffee Break
1540-1600	National Activities on Oceanographic Research and Data Management, Dr. Jung, Korea

1600-1620 National Activities on Oceanographic Research and Data Management, Prof. Lin, China

1620-1640 National Activities on Oceanographic Research and Data Management, Prof. Dr. Bui, Vietnam

1700 Close the first day's session

1830-2030 Reception hosted by Chief Hydrographer of Japan

March 6, 2002; Second day of the workshop

1000-1020 National Activities on Oceanographic Research and Data Management, Mr. Eclarino, Philippines

1020-1040 National Activities on Oceanographic Research and Data Management, Dr. Singhasaneh, Thailand

1040-1100 National Activities on Oceanographic Research and Data Management, Capt. Yakob, Malaysia

1100-1120 National Activities on Oceanographic Research and Data Management, Cdr. Dede, Indonesia

1120-1140 National Activities on Oceanographic Research and Data Management, Mr. Levitus, USA

1140-1200 National Activities on Oceanographic Research and Data Management, Mr. Toyoshima, JODC, Japan

1200-1220 The Kobe Collection - a historical marine meteorological observation data-, Mr. Minamoto, JMA, Japan

1220-1400 Lunch

1400-1420 Summary of the Draft Work Plan for GODAR-WESTPAC, Mr. Baba, Japan

1420-1520 Discussion on the GODAR-WESTPAC based on the draft work plan

1520-1540 Coffee Break

1540-1700 Discussion on the GODAR-WESTPAC based on the draft work plan

1700 Close the second day's session

March 7, 2002; Third day of the workshop

1000-1200 Discussion on the GODAR-WESTPAC based on the draft work plan

1200-1400 Lunch

1400-1500 Discussion on the GODAR-WESTPAC based on the draft work plan

1500-1520 Coffee Break

1520-1550 Wrap-up

1550-1600 Closing

ANNEX III

Work Plan for the GODAR in the WESTPAC Region

1. INTRODUCTION

The Global Ocean Data Archaeology and Rescue (GODAR) project has been established by the Intergovernmental Oceanographic Commission (IOC) in 1993 in order to save oceanographic data from a risk of losing by degradation of recording media or disaster etc., and to increase the volume of historical data available to climate change and other researches. The workshops related the program were held in each region to promote the project.

The large volume of data showed as followings, are collected at US-NODC/WDC-A through

the program under the cooperation of the IOC member states,

- 2.0 million temperature profiles;
- 120,000 Chlorophyll profiles;
- 600,000 plankton taxa.

These data have been made available internationally without restriction via CD-ROM and on-line as World Ocean Database 1998 by US-NODC/WDC-A.

However, there are many data that were reported at the GODAR II, in Tianjin, China, 1994, still in manuscript form in this region.

The importance of promoting the GODAR program in the region was recognized again at the International Conference for the International Data & Information Exchange in the WESTPAC region 1999 (ICIWP'99) held in Langkawi, Malaysia, Nov. 1999. And ICIWP'99 recommended the establishment of a working group chaired by the representative from Malaysia in order to start a GODAR type project in the WESTPAC region. This paper describes a work plan to support the development of the GODAR type project according to the recommendation of ICIWP'99.

It was adopted to promote the GODAR project in the WESTPAC region (GODAR-WESTPAC) at the 16th Session of the IOC committee on International Oceanographic Data & Information Exchange (IODE-XVI) in Lisbon, Portugal, Nov. 2000.

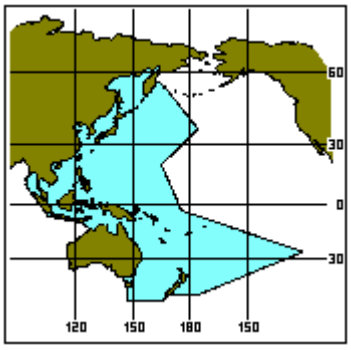
2. PURPOSE

The project aims to locate, rescue and make available marine data from the WESTPAC region that is in danger of being lost. Data that is stored on paper or on old media and is not presently available to the WESTPAC scientists will be sort for this project. Work will be undertaken to digitise the data or re-write the data onto modern media in an effort to safeguard it for future use. The data will also be quality controlled and then made available through the IODE system.

It is also expected that the project will enhance the IODE activities in the region.

3. PROJECT AREA

The project area of interest is the WESTPAC region as shown in the following figure;



4. PROJECT TERM

The project commences from 2002 as five years plan.

5. DATA TYPES

The project will focus on the data types that are exchanged routinely within the IODE system, especially focusing on the following data and any additional data collected at the time of observation:

- Hydrographic casts including all chemical and biological observations,
- CTD casts,

- Expendable Bathythermograph casts,
- Mechanical Bathythermograph casts,

6. STEERING GROUP

The project will establish a steering group to evaluate the progress of the project, review and update the work plan as necessary, and advise the Project Office for the project implementation. The steering group will consist of the IODE coordinators from the region, and from agencies participating in the project.

7. PROJECT OFFICE

A Project Office will be located at Japan Oceanographic Data Centre.

In general the Project Office coordinates project activities, implements the work plan, and enhances project communication as advised by the Steering Group.

Specific responsibilities of the Project Office:

1). PROJECT WEB SITE

The Project Office will develop a web site to promote the project, providing information on the projects activities and results.

2). BROCHURE

The Project Office will publish a brochure describing the GODAR activities in the region as a mechanism to promote the project within ocean research institutes of the region. The brochure will also include information on the full range of IODE activities to help promoting the IODE program in this region.

3). INFORMATION RELATED TO MARINE RESEARCH RESOURCES

The Project Office will collect information on the various marine research resources such as institutes, vessels and research facilities in the region. Much of this information will be collected based on the recommendation of the IODE Group of Experts in Marine Information Management (GE-MIM).

4). INFORMATION ON DATA LOCATED

The Project Office will collect information on data that is in need of 'rescue' as identified by the member states. This will assist in the development of priorities for the data rescue process. Details of these data sets will also be made available on the project web site.

5). COLLECTION OF DATA

The Project Office will work to identify resources for digitalization of manuscript data.

6). WORKSHOP

The Project Office will arrange workshops to evaluate the progress of the project and share information, knowledge and techniques related the project.

At the end of the project, a workshop will be held in order to:

- Evaluate the success of the project and establish a follow-up plan.
- Share new knowledge and products from the project among the IODE data centres, coordinators and marine researcher community.

After the final workshop, the coordinators will be expected to disseminate the results of

the project in own countries.

8. CHECK OF DUPLICATION

It is important that duplication of effort should be avoided and every effort will be made to ensure that the data identified for rescue has not already been digitalized. This will require close cooperation with other IODE centres and the World Data Centres

9. DIGITALIZATION OF DATA

It is anticipated that assistance with the digitalization of the paper-based data will come from NODC's and DNA's within the region. It is anticipated that:

1) If NODCs or DNAs are able to digitalize other country's data, they inform the Project Office. So that, the Project Office will make arrangement for digitalization plan.
2) NODCs and DNAs should send data digitalized as part of the project to the Project Office for inclusion into the IODE system. The Project Office will inform users via the web site that new data are available.

10. DATA POLICY

The data gathered by the project will be made available to users according to the IODE data policy, "Full and Open Sharing".

11. TECHNICAL COOPERATION

It is anticipated that the developed countries in the region will provide technical assistance to the developing countries for this project. The assistance will be based on cooperative schemes and training courses and provide a transfer of technology where possible. One area of support that will be investigated is the provision of equipment to countries to assist with the digitisation of rescues data. Other equipment such as CD-ROM drives to provide access to rescued data sets are also an option.

12. ESTIMATED COST AND TIME FRAME

The estimated cost and time frame of the project are indicated as following,

	2002	2003	2004	2005	2006	COST	Possible Sources
Establishment of SG							
Establishment of Project Office						US$30k	JODC
Establishment of Web page						US$20k	Project Office
Brochure						US$2k	PO
Information and data Collecting							Donor & PO
Digitising Data & Data QC							Donor, PO and IODE GODAR Trust Fund
Training						US$150k	IOC & Donor
GODAR WESTPAC CD-ROM data set						US$40k	Donor & PO
Workshop						US$60k	IOC & Donor

ANNEX IV

Terms of Reference for IODE Regional Coordinator (rev. November, 2000)

- Carry out actions targeted to strengthening co-operation in the area of marine and coastal data

and information management in the regions with a view to meeting the user needs effectively. This includes advising the existing NODCs within the region on new developments within the IODE system and helping to establish national data and information management systems including NODCs in the countries where the infrastructure has not yet been developed;

- Promote communication and collaboration between the data and information centers in the region, and exchange experiences with other regional coordinators;
- Establish links with the IOCs and other relevant regional and global science and services programs in order to be informed about on-going activities and keeping them informed of IODE developments;
- Liaise, at the regional level, with the relevant subsidiary bodies of IOC in order to promote the IODE system, services, and products to the widest possible audience;
- Support the efforts of the IODE Officers and the IOC Secretariat in implementing the fundraising process in the regions;

ANNEX V

IOC Oceanographic Data Exchange Policy

Preamble

The timely, free and unrestricted international exchange of oceanographic data is essential for the efficient acquisition, integration and use of ocean observations gathered by the countries of the world for a wide variety of purposes including the prediction of weather and climate, the operational forecasting of the marine environment, the preservation of life, the mitigation of human-induced changes on the marine and coastal environment, as well as for the advancement of scientific understanding that makes this possible.

Recognizing the vital importance of these purposes to all humankind and the important role of IOC and its programs in this regard, the Member States of the Intergovernmental Oceanographic Commission agree that the following clauses shall define their policy for the international exchange of oceanographic data and its associated metadata.

Clause 1

Member States shall provide timely, free and unrestricted access to all data, associated metadata and products generated under the auspices of IOC programs.

Clause 2

Member States are encouraged to provide timely, free and unrestricted access to data and associated metadata from non-IOC programs that are essential for application to the preservation of life, beneficial public use and protection of the ocean environment, the forecasting of weather, the operational forecasting of the marine environment, the monitoring and modeling of climate and sustainable development in the marine environment.

Clause 3

Member States are encouraged to provide timely, free and unrestricted access to oceanographic data and associated metadata, as referred to in 1 and 2 above, for non-commercial use by the research and education communities, provided that any products or results of such use shall be published in the open literature without delay or restriction.

Clause 4

The underlying aim of the IOC policy is to maximize the amount of oceanographic data for public use, while acknowledging the associated rights of the data originators and Member States.

Clause 5

Member States shall, to the best practicable degree, use data centres linked to IODE's NODC and WDC network as long-term repositories for oceanographic data and associated metadata.

IOC programs will cooperate with data contributors to ensure that data can be accepted into the appropriate systems and can meet quality requirements.

Clause 6

Member States shall enhance the capacity in developing countries to obtain and manage oceanographic data and information and assist them to benefit fully from the exchange of oceanographic data, associated metadata and products. This shall be achieved through the non-discriminatory transfer of technology and knowledge using appropriate means, including IOC's Training Education and Mutual Assistance (TEMA) program and through other relevant IOC programs.

Definitions

'Free and unrestricted' means non-discriminatory and without charge. "Without charge", in the context of this resolution means at no more than the cost of reproduction and delivery, without charge for the data and products themselves.

'Data' consists of oceanographic observation data, derived data and grid fields.

'Metadata' is "data about data" describing the content, quality, condition, and other characteristics of data.

'Non-commercial' means not conducted for profit, cost-recovery or re-sale.

'Timely' in this context means the distribution of data and/or products, sufficiently rapidly to be of value for a given application

'Product' means a value-added enhancement of data applied to a particular application.

ANNEX VI

Terms of Reference for RNODC-WESTPAC (24 February 1979)

- Produce a work plan to define i) the procedures of JODC in acquiring, processing, reformatting and archiving, distribution of data, and inventory of research cruises in the WESTPAC region with reference to the WDC system and ii) the implementation of this work plan;
- Provide a mechanism for registration of WESTPAC cruises with RNODC-WESTPAC;
- Work closely with national coordinators for IODE and any other national contact points for data management within WESTPAC who might be appointed by member states;
- Publish a guide for WESTPAC data management for distribution to member states through national contact points.

ANNEX VII

Participants List of the 6th IOC/WESTPAC Training Course

- Dr. Qinzheng Liu (China, National Center for Marine Environment Forecast)
- Ms. Famiza Yunus (Fiji, South Pacific Applied Geoscienc Commission (SOPAC))
- Mr. Nur Riyadi (Indonesia, Marine Environment Division, Hydro-Oceanographic Service, Indonesian Navy)
- Lt. Cdr. Norhizam B. Hassan @ Abd Ghani Rmn (Malaysia, Hydrographic & Oceanographic centre, Naval Hdqrs., Ministry of Defense)

- Dr. Hyunju OH (the Republic of Korea, KODC, National Fisheries Research and Development Institute)
- Dr. Elena Ustinova (the Russian Federation, Laboratory of Fisheries Oceanography, Pacific Scientific Research Fisheries Centre (TINRO-Centre))
- Ms. Kaewnuratchadasorn Pattaratjit (Thailand, Southeast Asian Fisheries Development Center (SEAFDEC))

ANNEX VIII

Course Program and Lecturers of the 6th IOC/WESTPAC Training Course

Monday, 21 October 2002

Morning : Opening Ceremony and Course Orientation

Afternoon : Lecture on Outline about IOC, WESTPAC, and NEAR-GOOS
by Dr. Keisuke TAIRA, Japan Society for the Promotion of Science

Tuesday, 22 October 2002

Morning : Study Visit to Hydrographic and Oceanographic Department

Afternoon : Country Report (Introduction of Oceanographic Data Management in the Participant's Country)

Wednesday, 23 October 2002

Morning : Lecture on Oceanographic Data and Information Management in JODC
by Mr. Yoshihiko SUGIYAMA, JODC

Afternoon : Introduction to WDC-A and NODC activities
by Mr. Robert GELFELD, WDC-A for Oceanography

Thursday, 24 October 2002

Morning : Introduction to the IODE system and GODAR project
by Mr. Robert GELFELD, WDC-A for Oceanography

Afternoon : Introduction to the IODE Resource Kit
by Mr. Isao TEDOKON, JODC

Friday, 25 October 2002

Morning : Lecture on NEAR-GOOS Real Time Data Exchange System
by Mr. Takashi YOSHIDA, Japan Meteorological Agency

Afternoon : Study Visit to Japan Meteorological Agency

Monday, 28 October 2002

Morning : Lecture on Research for Ocean and Utilization and Management
by Dr. Yutaka NAGATA, Marine Information Research Center

Afternoon : Lecture on CTD and BT Data Processing
by Mr. Hideki KINOSHITA, Hydrographic and Oceanographic Department, JCG
Lecture on Tidal Data Processing
by Dr. Minoru ODAMAKI, Hydrographic and Oceanographic Department, JCG

Tuesday, 29 October 2002

Study Visit to the National Research Institute of Fisheries Science and the Japan Marine Science and Technology Center

Wednesday, 30 October 2002

Morning : Lecture on Ocean Current Data Processing
by Prof. Yutaka MICHIDA, Ocean Research Institute, University of Tokyo)

Afternoon : Practice on Practice Data Management by using PC

Lecture on NEAR-GOOS Delayed Mode Data Exchange System and JODC Data On-line Service System
by Mr. Takeharu MIYAKE & Mr. Yuichi KYUMA, JODC)

Thursday, 31 October 2002

Morning : Lecture on Marine Chemical Data Processing and Management
by Ms. Sachiko OGUMA, Marine Information Research Center)

Afternoon : Lecture on Marine Biological Data Processing and Management
by Prof. Makoto TERAZAKI, Ocean Research Institute, University of Tokyo and Mr. Tsuyoshi CHIBA, JODC

Friday, 1 November 2002

Morning : Course Evaluation and Closing Ceremony

Afternoon : Customized Special Study

ANNEX IX

Terms of Reference for RNODC-IGOSS (September 1979)

- Acquire BATHY, TESAC datasets and sub-surface temperature data from drifting and moored buoys from the IGOSS Specialized Oceanographic Center (SOC) for areas of responsibility;
- Apply supplementary quality controls to acquired data, and provide services to users after 30 days from receipt of that data;
- Archive, and make available to users, selected data products from SOCs and analysis centers;
- Acquire non-operational BATHY, TESAC, and sub-surface temperature data from drifting and moored buoys and/or datasets for areas of responsibility;
- Apply quality controls to non-operational data, prepare integrated datasets, and provide services to users;
- Provide for exchange of IGOSS data in GF-3 format with other RNODCs or to other users as requested;
- Maintain a database and inventory for areas of responsibility;
- Prepare products based on operational and non-operational IGOSS data, as appropriate;
- Annually transmit to the WDCs datasets in GF-3 format, inventories and selected data products;
- Prepare summaries and BATHY, TESAC, and sub-surface temperature from drifting and moored buoys database plots, and transmit to the IOC Secretariat every 15 August and 15 February for data received during the previous 6 months;
- Participate in efforts to monitor data flow;
- Participate in IOC training programs, as feasible;
- Provide, wherever possible, for exchange of documentation and software regarding quality control and processing procedures, with other RNODCs.

ANNEX X

Terms of Reference for RNODC-MARPOLMON (May 1987)

A. Referral

The RNODC-MARPOLMON will:

- Provide a referral capacity to worldwide holdings of marine pollution data.

B. Access

The RNODC-MARPOLMON will be expected to demonstrate:

- A capability and willingness to perform automated data processing functions for marine pollution data;
- A willingness to accept marine pollution data which may not be received in automated form, and to convert the data to such a form;
- A capability for performing quality control (format and/or environmental) checks;
- A capability to work with discipline-oriented codes (biological and chemical);
- A capability for converting marine pollution data to GF3 format or other internationally recognized format.

C. Products

The RNODC-MARPOLMON will:

- Provide copies of processed data to World Data Centers A and B (Oceanography);
- Provide machine listings and simple statistics of marine pollution data;
- Produce graphics of marine pollution data, for usage by concerned member states.

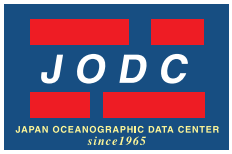
D. Training

The RNODC-MARPOLMON will conduct formal or informal training sessions for data center personnel involved in the program and who actively submit marine pollution data. Expenses of trainees will not, however, be borne by the RNODC concerned. Selection of trainees will be jointly arranged by the IOC and RNODC.

ANNEX XI

Terms of Reference for RNODC-ADCP (27 June 1991)

- Compile, evaluate and keep updated information on existing datasets held by member states already active in ADCP measurements;
- Produce, and keep updated, a catalogue of ADCP users which will include information about ADCP instruments, related instrumentation (GSP, Loran, measurement of ship motion, etc.), procedures for averaging and sampling (temporal and spatial, vertical and horizontal), quality control methods, formats and products;
- In consultation with other NODCs, ICES and SCOR, establish and maintain standards and procedures for the reduction, quality control, archiving, and exchange of ADCP data;
- Assemble an archive of ADCP data received from other member states so as to assess the effectiveness of the proposed standards and procedures;
- Prepare guidelines concerning different performance characteristics and data documentation relevant to each instrument type in order to formulate adequate data documentation and quality control procedures;
- Report on the progress of RNODC ADCP to the Group of Experts on RNODCs and Global programs and to the IOC Committee on IODE.



FURTHER INFORMATION

Japan Oceanographic Data Center

5-3-1, Tsukiji, Chuo-ku, Tokyo 104-0045, Japan
Phone: +81-3-3541-4295, Fax: +81-3-3545-2885
E-mail: mail@jodc.go.jp
Homepage: http://www.jodc.go.jp/