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IODE

JODC
JAPAN OCEANOGRAPHIC DATA CENTER
since1965

RNODC ACTIVITY REPORT

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

No.15
March 2004

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

Preface

On behalf of all Japan Oceanographic Data Center (JODC) staff, I would like to express my sincere gratitude to users and contributors. With your kind cooperation, we could issue the fifteenth annual activity report as Responsible National Oceanographic Data Center (RNODC) within International Oceanographic Data and Information Exchange (IODE) framework.

This report is mainly intended to notify the current dissemination and utilization of data in JODC numerically. JODC's international activities such as education and training, organizing of conference, and research and development are also reported.

Since its establishment in 1965, JODC has managed and provided oceanographic data consistently. The amount of archived data has become huge in recent years. It is our mission that valuable data from contributors are utilized by users effectively without any hoarded data. Therefore, it becomes more important to not only collect or archive data but also provide easy access and promote utilization of data.

JODC has operated JODC Data On-line Service System (J-DOSS), by which users can easily acquire data through Internet. In 2003, we started to provide data not only in conventional text files but also in Network Common Data Form (netCDF) and Ocean Data View (ODV) spreadsheet to try to improve the easiness of the data utilization.

Moreover, we tried to facilitate international data exchange and improve the capacity of data processing in this region, to promote utilization of oceanographic data.

There are a lot of data that have not been necessarily utilized yet. It is JODC's mission to promote utilization of those data, develop the system so that the results develop further data exchange and maintain stable services in the future.

Your continued support and cooperation for JODC activities will be greatly appreciated.

March 2004
Nobuyuki Shibayama
Director
Japan Oceanographic Data Center

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1. Topics in JODC

1.1. New Digital Publications of JODC

1.1.1. Japanese Experiment on Asian Monsoon (JEXAM)

The Asian Monsoon has exerted a great influence on the climate changes in the Southeast Asia region and the surrounding area as well as Japan, and moreover it has influenced the global climate change. Due to the vastness of these regions and waters and the severe observational environment, however, the collection of data concerned with the basic meteorological and oceanographic conditions has not necessarily been sufficient.

Because of these, the Science and Technology Agency implemented the Japanese Experiment on Asian Monsoon (JEXAM) to understand the mechanism of the Asian Monsoon in its ten-year program from 1989 to 1998 with the participation of research institutes of the Science and Technology Agency, the Japan Fisheries Agency, the Maritime Safety Agency, the Japan Meteorological Agency and the Ministry of Posts and Telecommunications.

The JODC, which has led the collection, management and provision of oceanographic data related to the study, published the dataset in order to prevent the dispersion of oceanographic data obtained from the study and encourage the further utilization of the data.

The dataset contains the following oceanographic data in the Indian Ocean:

- Japan Meteorological Agency
  - Some 3800 data of water temperature by XBT
- Japan Fisheries Agency
  - Some 4600 data of water temperature and salinity by XBT and CTD, etc.
- Maritime Safety Agency
  - ARGOS drifting buoy data
  - Ocean current calculated from the positions of ARGOS drifting buoys
- World Data Center-A
  - Water temperature data by BT and XBT, etc., in the “World Ocean Database 1998”
- Others
  - Annual track animation of ARGOS drifting buoys

(The names of the organizations are those at the time of study)

1.1.2. Ecological Study Dataset of Microbial Web in the Tokyo Bay (ECOMIC)

The JODC has led the collection and information management for the observation data of marine organisms as well as the publication of the data. The JODC recently digitized the research and observation data of zooplankton and phytoplankton in the Tokyo Bay provided by Dr. Kimitoshi Ishikawa, a former senior researcher at the National Institute of Advanced Industrial Science and Technology, and compiled them as a dataset in CD-ROM.

The dataset is Ecology of Coastal Microbial Cycle (ECOMIC) that the Marine Environment Division of the National Institute for Resources and Environment (the present National Institute of Advanced Industrial Science and Technology), with the cooperation of the Ocean Research Institute of the University of Tokyo and the Shinshu University, studied for five years from 1993 the decomposition and circulation system of organic matters involving the decomposition and production of microbial web in the dynamic state of organic matters in the Tokyo Bay.

The study estimated the origin of the mixed organic matters to be the influx of the rivers or the circulation and regeneration in the Tokyo Bay using the examination methods of carbon isotopic ratio in the surface water samples from 13 observation points running through the Tokyo Bay from north to south and also provided the analyzed observation data in the enclosed bay for the measurement of bacteria and plankton of more than 50 species in the Tokyo Bay and the grasp of their existing numbers.

In the enclosed coastal waters including bays, the influx of organic matters from the rivers has caused the sedimentation in the estuaries to deteriorate the water environment or affect the efforts to improve it. Meanwhile, however, there has traditionally been the biocycle that has formed the cycle of circulation and regeneration for the generation and decomposition of organic matters involving microorganisms in the enclosed waters to ensure the stability of the waters; the behaviors of each organic matter in the water are believed to be different that makes one of the major tasks to regenerate and improve the environment of the enclosed waters.

It was a good opportunity for the improvement and consideration of the management and provision of effective format and data that the JODC participated in the production of digitized dataset of the ECOMIC data to digitize and compile the general monitoring research data in the bay area.

The JODC is determined to address the enhancement of data management and the effective provision of data through the further oceanographic data archaeology including monitoring research.

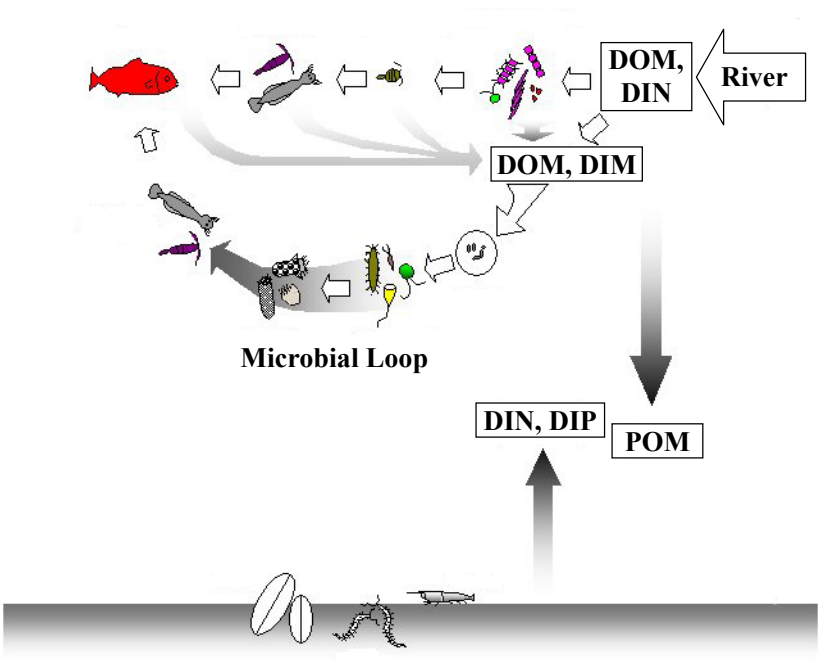


Fig. 1 Microbial Loop in Food Web

1.1.3. Statistics of Wave Data

The JODC took the statistics for 20 years of wave data from visual observations on the vessels in Japanese waters and wave data taken at 51 points along Japanese coast including the vessel weather report points by the use of vision or measuring devices and compiled them into diagrams to publish its homepage and CD-ROM (written in Japanese).

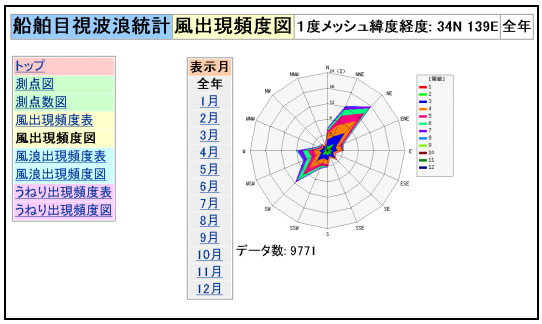


Fig. 2 Frequency of Appearance of Wind

Statistic items:

Wave data from vessel:

Frequency of appearance of wind, wind wave and swell

Wave data at coast:

Previous maximum and average values of wind, frequency of appearance of wind and wind wave

Statistic areas:

Wave data from vessel:

1-degree mesh of latitude 20-50 degrees north and longitude 120-150 degrees east

Statistic period:

Full years from 1978 to 1997 and each month

1.2. JODC Data On-line Service System (J-DOSS)

1.2.1. ODV spreadsheet and NetCDF file

The JODC operates J-DOSS (JODC Data On-line Service System), which is an on-line oceanographic data or information retrieval system. The oceanographic data are downloaded through J-DOSS in the JODC standard ASCII text format, FETI (Format of Exchange and Translation for Integration) format. The different types of oceanographic data obtained by various observation equipments are integrated into two types of formats, scalar type and vector type. The header records of both formats are also integrated.

Although, in recent years, the software that can easily visualize various oceanographic data has been published and widely used, the FETI format that is not compatible with such software. Therefore, the JODC improved J-DOSS in July 2003 so that, in addition to the FETI format, the oceanographic data could be downloaded in ODV spreadsheet and the NetCDF file, which are used worldwide.

ODV spreadsheet

This is a file format compatible with "Ocean Data View," the software by which oceanographic data can be easily visualize, that the Alfred Wegener Institute (AWI) in Germany developed and is a simple tab-delimited ASCII format. With a header line in the first line and data part from the second line, the format can easily be incorporated into spreadsheet software.

(See *http://www.awi-bremerhaven.de/GEO/ODV/*)

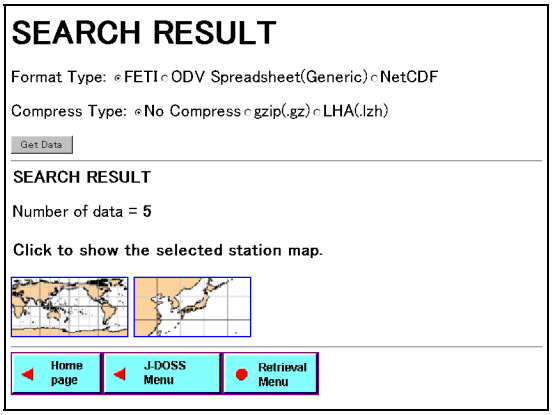


Fig. 3 Screen Shot of Search Result

NetCDF file

This is a Network Common Data Form format file developed by the University Corporation for Atmosphere Research (UCAR) Unidata Program Center in the U.S. As data input/output library is already prepared, and there are many applications compatible with the NetCDF file, you can handle data without being aware of data format.
(See *http://www.unidata.ucar.edu/packages/netcdf/*)

1.2.2. Update of the data

The following are the data updated at present:

- **Tide Data**
  Data period: 2002 to 2003
- **Ocean Current Data (ADCP)**
  Data period: 2002
- **Serial Station Data**
  - CTD
    Data period: 2002 to 2003
  - XBT
    Data period: 2002 to 2003
  - Antarctic Expedition Data
    Data period: until 2001
- **GODAR data**
  - Serial Station Data
    Data period: 1931 to 1947
    Station Plots: Shown in Fig. 4.
  - Tide Data
    Data period: 1938 to 1964

Background of Discovery of Materials

The Global Oceanographic Data Archeology & Rescue Project (GODAR) has been promoted, and the "GODAR-WESTPAC" for the West Pacific Region has also started.

As a result that the JODC searched for the forgotten data in the Japan Coast Guard, 32 cardboard boxes containing the oceanographic materials of the Imperial Japanese Navy Hydrographic Department (the present Japan Coast Guard Hydrographic and Oceanographic Department) were discovered in the warehouse. The materials were naturally dusty, and the covers were weathered and partly torn apart, while the inside containing the observation values, etc., was unexpectedly in good condition though weathered (the recording papers in those days were good quality?). As a result that these observation record tables were categorized into observation years, research ships, observation waters, observation items, etc. and examined if registered in the JODC's database, it turned out that more than 17000 data were unprocessed.

The sorting of this massive amount of materials was naturally a hard work, but the fight with ticks was much harder. A few days after the spraying of pesticide on the materials, the work with gloves on was started, which was unbearable because of itching.

The materials at that time were withdrawn by the Allied Occupation forces soon after the end of the WW II but were returned later. Most of them were digitized around the time

of the establishment of the JODC and have been made available to the public since. Most of the materials discovered were documented then by the "Base Observation Teams" located at 19 places in the country. It is speculated that they have been remained hidden for all these years, as the Allied Occupation forces did not withdraw them.

The materials consist of those documented between 1931 and 1947, but most of them are the observation materials documented between 1939 and 1944. The number of data is about 12000, and about 12000 are of water temperature and salinity, about 10000 are of pH, about 100 are of dissolved oxygen and silicate and about 340 are of ocean current data by observation item.

Because it was during the war, the observation points extended from Taiwan to the Philippines, Indonesia and the offshore of the Marshall Islands (See Fig. 4).

In addition, as for tide data, the hourly rise of tide (monthly tables of tide) in paper medium hidden in the warehouse was rescued. These data were collected at the Port of Yokosuka in 1938 and 1942-1944 and the Port of Sasebo and the Izuhara Port after 1943.

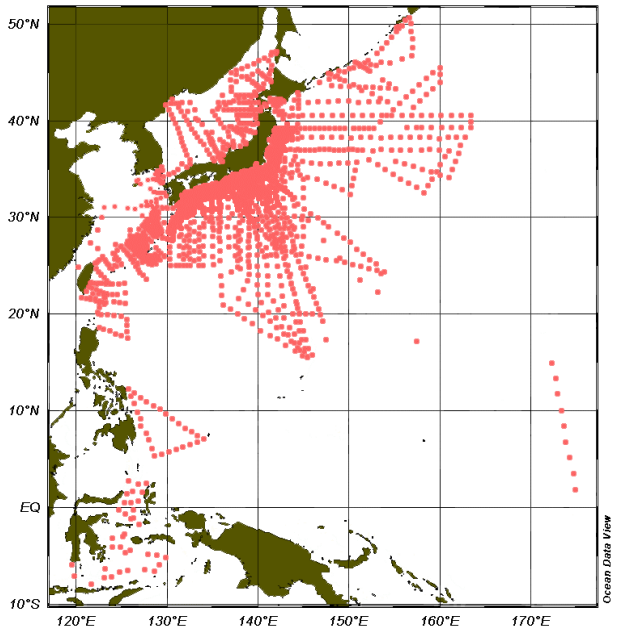


Fig. 4 Station Plots for GODAR Serial Station Data

- **Newly posted Chart of Wave Statistics**

  Data period: 1978 to 1997

  Two types of Chart of Wave Statistics — "Statistics of Wave Data from Onboard Visual Observations" using data from the vessels and "Statistics of Wave Data from Visual Observations at Coast" using data observed at coast — were developed.

  The Statistics of Wave Data from Onboard Visual Observations separate latitude/longitude by 1-degree mesh. The range of the waters is 20N-51N, 120E-151E.

  The Statistics of Wave Data from Visual Observations at Coast were collected at 70 observation points across the country.

  Statistical items are wind, wind wave and swell.

  Available figures and tables are: Station Plots, Map of Density of Stations, Table of Maximum Wind Speed, Table of Average Wind, Figure of Frequency of Appearance and Table of Frequency of Appearance.

Received data from each country is plotted in Fig. 5.

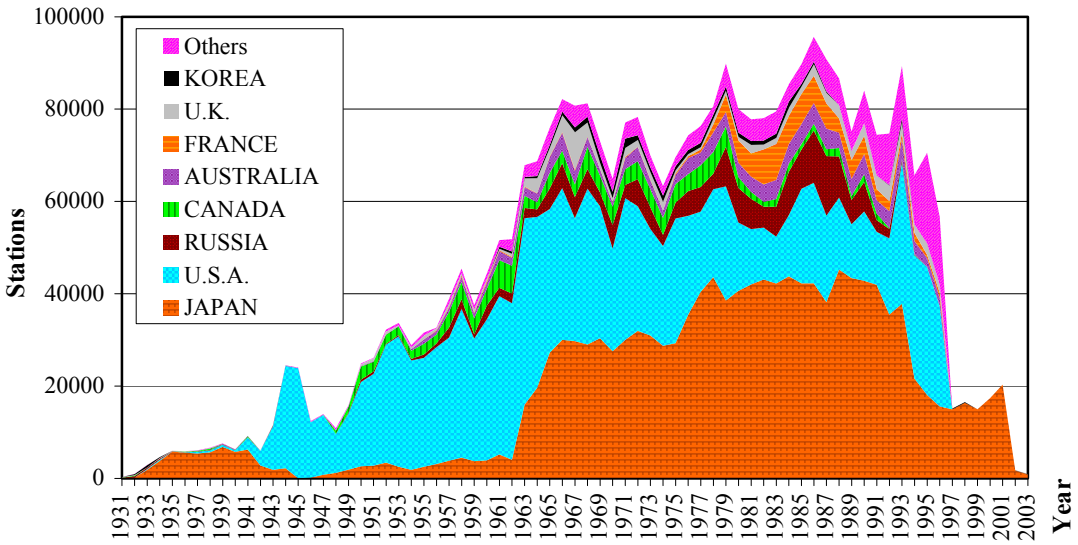


Fig. 5 Time Series of Data for Each Country

1.3. Introduction of Received Data

1.3.1. JGOFS International Collection

When the JGOFS's Final Open Science Conference was held at the National Academy of Sciences in Washington, DC, USA, 5-8 May 2003, the DVD of dataset containing each country's JGOFS-related project were distributed to the participants, and 50 of them were sent to the JODC.

This dataset was developed by Data Management Task Team (DMTT) with the cooperation of the World Data Center for Marine Environmental Sciences (WDC-MARE). It contains the datasets from 15 countries, which includes Northwest Pacific Carbon Cycle Study (NOPACCS) from Japan. In this volume, each dataset is contained in separate folder and formats of data are not unified.

Further development is scheduled for the next volume that may be published in 2004 or 2005.

1.3.2. NOWPHAS

NOWPHAS (Nationwide Ocean Wave information network for Ports and HArbourS) is national network for the coastal wave observation developed and operated by the Ports and Harbors Bureau of MLIT (Ministry of Land, Infrastructure and Transport) in conjunction with the Port and Airport Research Institute, National Institute for Land and Infrastructure Management, and the Regional Develop Bureaus.

Since 1970, the Port and Airport Research Institute has been in charge of processing and analyzing of coastal wave data in the NOWPHAS network. The wave data of more than 50 coastal sites around Japan are transferred to the Port and Airport Research Institute in real time.

The coastal wave information of NOWPHAS contributes to the maritime safety through the coastal wave forecasting by Japan Meteorological Agency. The results of the statistical analysis of long-term wave data are used for the planning and constructing of ports, airports, and shore protection, and also widely used for the development, utilization, protection of disasters in the coastal area.

JODC has received the analyzed wave data at more than 50 sites around Japan observed in 2001 from the Port and Airport Research Institute. They consists of the data on mean wave, significant wave, 1/10 highest wave, and maximum wave at each site of 2-hour interval. Since July 2003, such data have been available on NEAR-GOOS RDMDB (Regional Delayed Mode DataBase).

1.4. IODE Regional Coordinator for WESTPAC

The system of IODE Regional Coordinator was established mainly for the objectives of accelerating infiltration of 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 I.

The main activity of Regional Coordinator in the year of 2004 was the promotion of GODAR-WESTPAC. JODC staff, Mr. Tomioka visited Bangkok in December, 2003, to inspect the situation of data exchange in Thailand and to request the support to GODAR-WESTPAC.

Visit to Bangkok

I visited Bangkok, Thailand, from December 1 to 5, 2003, mainly for the research of carbon dioxide (CO_2)-related substances data and the research of the flow of the oceanographic data, etc. The outline is as follows.

I visited the Chulalongkorn University on December 2. The university had a vast campus of 40000 faculty and students with a street running through it.

The Visiting Professor Satsuki Matsumura took a good care of me. His support helped me achieve my objectives. Although he was very busy for the practical training of marine research on the following day, he spared his time for me. As the university has no marine research vessels of its own, those researches are conducted a few times a year using a chartered ship with periodic contract. I was told that the main feature of the activity was a practical training of marine research for students rather than actual marine research, and the main research items were physical data including water temperature, salinity, etc., and biological data.

It seems that the collected data are mostly kept by the university and, as a whole, researchers and engineers themselves with less data distribution. His explanation about circumstances over marine data in Thailand helped me glimpse a part of Thailand's general efforts toward marine research. After that, I explained to him about the purpose and registration procedure of the GODAR-WESTPAC using the pamphlet I had brought with me as well as the state of archeology and digitalization of the oceanographic data from 1945 to 1954 in Japan. With the cancellation of my visit plan on the following day, I visited this day the Secretariat of the Southeast Asian Fisheries Development Center (SEAFDEC) without appointment, but the person in charge was absent. The SEAFDEC, an autonomous intergovernmental body of 10 countries including ASEAN member countries and Japan for the research and development of fisheries mainly in the South China Sea and the education and training, was developing various kinds of data products (CD-ROMs). The data of WDC and JODC were used in them. On the following day, I visited the Bangkok office of the IOC/WESTPAC. The office was on the 3rd floor of the National Research Council where I met Dr. Miguel D. Fortes, the chief of the office who had arrived in the post from the Philippines in October 2003, and Ms. Nachapa Saransuth, the secretary whom I had contacted with on the WESTPAC/NEAR-GOOS data management training. I explained to them about the JODC's plan to cancel the next year's 8th WESTPAC/NEAR-GOOS data management training to hold the workshop of the GODAR-WESTPAC instead. They questioned me about the reason, date, budget, etc. I asked them for the cooperation of the office that would be needed when it was decided to hold the workshop.

Dr. Miguel promised me to cooperate and requested me to inform him as soon as possible, and I promised him to inform him at every important step of each procedure.

2. International Projects / Meetings Participated in by JODC

2.1. Report of the 17th Session of IOC Committee on IODE

The Seventeenth Session of IOC Committee on IODE (International Oceanographic Data and Information Exchange) was held at the UNESCO Headquarters, Paris, France during 3-7 March 2003. The session was attended by 72 delegates from 42 IOC Member States, 16 representatives of organizations, programmes and projects, and 5 observers. From Japan, Prof. Michida of Ocean Research and Mr. Sato of JODC participated in the session.

At the opening of the session, the Chair, Dr. Balopoulos pointed out that the focus of IODE had shifted from the traditional delayed-mode, physical data management.

JODC reported on the activities of the RNODCs for WESTPAC, IGOSS, MALPOLMON, and ADCP during the past inter-sessional period, noting inter alia the NEAR-GOOS RDMDB (Regional Delayed Mode DataBase), IOC/WESTPAC training course on NEAR-GOOS data management, and the data management for shipboard ADCP at JODC. In addition, as the work of the IODE Regional Coordinator for WESTPAC, JODC informed the Committee of the progress related to the GODAR-WESTPAC (Global Oceanographic Data Archaeology and Rescue in the Western Pacific), noting the first International Workshop on GODAR-WESTPAC held in Tokyo during 5-7 March 2002.

Concerning the RNODCs, the Committee decided to maintain the RNODC for the Southern Ocean, in spite of the dissolution of IOCSOC (IOC Regional Committee for the Southern Ocean). On the other hand, the RNODC-Formats were dissolved because it had not functioned at all for several years. The IOC/IODE Secretariat took over the tasks formerly covered by the RNODC-Formats.

The Committee reviewed the work of the past inter-sessional period, especially, the cooperation with GOOS (Global Ocean Observing System) and JCOMM (Joint WMO-IOC Technical Commission for Oceanography & Marine Meteorology), the new IODE Group of Experts on Biological and Chemical Data Management & Exchange Practices (GE-BCDMEP), the new Global Ocean Surface Underway Data Pilot Programme (GOSUD), the Global Oceanographic Data Archaeology and Rescue (GODAR) project, the development of a marine XML, and the regional networks ODINAFRICA (Ocean Data and Information Network for Africa) and ODINCARSA (Ocean Data and Information Network for IOCARIBE and South America).

The Committee decided to establish two working groups. The first one is an inter-sessional working group to examine the future role of WDCs, RNODCs and NODCs. The Committee discussed how well the data centers meet the needs of IODE's current data management requirements, which are very different from when IODE was established. And, then the working group was tasked to discuss future roles for the WDCs, as well as RNODCs and NODCs taking into consideration, inter alia, the needs of JCOMM and GOOS in terms of operational data. The second one is an ad hoc working group on the implications of GOOS and JCOMM development on IODE. It was tasked to prepare, for IODE-XVIII, a comprehensive report on the interactions between GOOS, JCOMM and IODE. The Committee also decided to establish the IODE Review Team and defined its terms of reference. The review team was recommended to be independent with experience in data management and users/clients of IODE services. It was tasked to present the final report to the IOC Assembly at its 23rd session in 2005.

The Committee recommended the merging of the GETADE (IODE Group of Experts on the Technical Aspects of Data Exchange) and JCOMM ETDMP (Expert Team on Data Management Practices), because two expert teams with very similar terms of reference.

The Committee supported the establishment of an IODE Project Office and recommended that the offer of the Government of Flanders and the City of Oostende to host the Office in Oostende, Belgium be accepted. The IODE Secretariat faces the problems, (i) limitations in bandwidth at UNESCO Headquarters; (ii) shortage of technical staff; (iii) no equipped training facilities are available and (iv) difficulties in obtaining equipped meeting room facilities. In response to these problems, an IODE Project Office will be established.

The Committee elected Dr. Lesley Rickards as IODE Chair and Mr. Ricardo Rojas as IODE Vice-Chair.

2.2. Report of the 22nd IOC Assembly

The 22nd IOC Assembly was held at the headquarters of UNESCO in Paris from June 24 to July 4, 2003, with the participation of 85 states of the IOC Member States. The Japanese delegation headed by Mr. Terazaki, a professor of the Ocean Research Institute of the University of Tokyo, consist of 8 members (2 from the Ocean Research Institute, 1 from the Ministry of Foreign Affairs, 3 from the Ministry of Education, Culture, Sports, Science and Technology, 1 from the Meteorological Agency and 1 from the JODC).

Mr. Sato of the JODC attended from June 24 to July 1. The discussion on the oceanographic data management at the Assembly is mainly reported as follows.

The IOC Oceanographic Data Exchange Policy was adopted at the Assembly. The IOC has implemented the international exchange of the oceanographic data mainly through the International Oceanographic Data and Information Exchange (IODE) system consist of the World Data Centers (WDCs) and National Oceanographic Data Centers (NODCs) based on the principle of "full and open sharing."

However, due to the increase of importance of real-time data exchange and the practical use of the oceanographic assimilation model, together with the recent adoption of the data exchange policy by the World Meteorological Organization (WMO) in the field of meteorology sharing the oceanographic and meteorological data, IOC was required to consider the international data exchange policy responding to the times.

The IOC Executive Council decided in 2002 to establish the intergovernmental working group to consider the IOC Oceanographic Data Exchange Policy. The working group subsequently continued the consideration, compiled the Draft IOC Oceanographic Data Exchange Policy under the countries' agreement in 2002 and submitted it to the Assembly.

The draft policy proposed to the Assembly comprised of a Preamble and six Clauses. Its principle is the "timely, free and unrestricted" access to the oceanographic data by the Member States, and a new concept of 'timely' exchange responds to the advanced information technology. In order to ensure consistency with that the meteorological data exchange policy defined the oceanographic and meteorological data as the kind of data included in the category putting no restrictions on the exchange, no regulations to put restrictions on the exchange were made. In the light of special characteristics that some oceanographic data would take longer time to be analyzed, however, the regulations to protect the rights were made with the setting of the period of exclusive use by data producers and other things in mind.

The draft policy was developed by the participation of the countries so that it was expected that the draft policy should be adopted by the Assembly without any argument. However, the amendments were submitted so that it was decided that the intersessional working group should be set up to consider them.

The intersessional working group with the participation of the representatives from many countries was held twice. As a result, the Preamble and Clause 1 were partly amended. The amendments were sent to the Assembly and approved by the countries so that the policy was adopted as the Resolution-VI. In addition, the Assembly expressed its appreciation to Dr. McEwan, the chairperson of the intergovernmental working group and the intersessional working group, for his energetic work to compile the policy. The full text of the adopted IOC Oceanographic Data Exchange Policy is given to the Annex II.

The IODE Chairperson Dr. Rickard presented the report of the 17th session of IODE Committee held in March 2003. In her report, Dr. Rickard started from the purpose and composition of the IODE and summarized the recent achievements and future direction. The main point of the report was that the IODE had traditionally been successful in the field of long-term data archive, especially physical oceanographic data, and it would aim for the response to various data items including chemical and biological data and the real-time data service responding to the recent progress of information technology in the future. She also stated about the promotion of further cooperation with the GOOS and JCOMM and the strengthening of the Capacity Building efforts that had traditionally been the pillar of the IODE. In addition, she proposed the establishment of the IODE Project Office to promote the above–mentioned activities forward. 21 countries voiced their support for the Chairman's report.

This report was also adopted as the Resolution-VII, and the establishment of the IODE Project Office in Oostende, Belgium, was approved.

The Assembly elected Dr. David Pugh from the U.K. as the new IOC Chairperson and adopted the following 14 Resolutions.

1. Guidelines for the Establishment of Decentralized Offices
2. Feasibility of Establishing a Regular Process for the Assessment of the State of the Marine Environment
3. Improved Governance of IOC Affairs within UNESCO
4. Review of the Structure of the Global Ocean Observing System (GOOS)
5. 6th Session of the IOC Intergovernmental Panel on Harmful Algal Blooms (IPHAB)
6. IOC Oceanographic Data Exchange Policy
7. International Oceanographic Data and Information Exchange (IODE)
8. 6th Session of the Intergovernmental Committee for the Global Ocean Observing System (GOOS)
9. Memorandum of Understanding between ICES and IOC
10. 5th Session of IOC Regional Committee for the Co-operative Investigation in the North and Central Western Indian Ocean (IOCINCWIO)
11. IOC Activities in the Caspian Sea Region
12. 3rd Meeting of the IOC Advisory Body of Experts on the Law of the Sea (IOC/ABE-LOS-III)
13. A Strategy for the Use of Remote Sensing in Oceanography
14. Programme and Budget for 2004-2005

2.3. Report of the Final Meeting of the JGOFS NPTT/NPSG

The final meeting of the JGOFS (Joint Global Ocean Flux Study) NPTT (North Pacific Task Team) / NPSG (North Pacific Synthesis Group) was held at the Hydrospheric Atmospheric Research Center (HyARC) of the Nagoya University and in Mikawa Miya from November 10 to 12 in 2003. Mr. Oichi from the JODC attended the meeting from 10 to noon of 11.

After the opening remarks in the first day morning, Dr. Feely and other researchers from various

countries presented each country's achievements in the JGOFS-related project in the North Pacific.

In the first day afternoon, there were the presentation and discussion about the JGOFS NPPS dataset CD-ROM to be published by the JODC in March 2004. Dr. Oguma from the MIRC (Marine Information Research Center) introduced the relevant Web page after the presentation of the master plan by Mr. Baba from the Japan Coast Guard Hydrographic and Oceanographic Department, and there were many opinions on them.

First of all, the policy that should not rerecord from the existing dataset to avoid overlapping for the range of containing data was strongly opposed, and there were many opinions that should contain all the relevant data to make a valuable dataset regardless of its availability through the existing CD-ROM or the Internet. Especially the data of the Oshoro-maru, WOCE (World Ocean Circulation Experiment) and HOT (Hawaii Ocean Time-series) was requested to contain. In addition, especially Feely's data was decided to be contained as it was free to be contained.

Then, there were opinions about data processing, and the range of data processing work and its expressions was decided to establish an editorial policy of the JGOFS NPPS (North Pacific Process Study) dataset.

After the above-mentioned discussions, the initial schedule was changed to summarize the JGOFS's activities in the North Pacific. In addition, the future policy was actively discussed, and the first day of highly concentrated meeting was over.

In the mooning of November 11, Dr. Chen explained the cooperation system over the JGOFS North Pacific and the major international projects, especially the large-scale joint project by the IGBP (International Geosphere-Biosphere Programme), IHDP (International Human Dimensions Programme on Global Environmental Change) and WCRP (World Climate Research Programme), and made a detailed introduction of GCP (Global Carbon Project) that would be the core of the carbon dioxide study in the future. Then, there were reports including scientific achievements. The Chairman Bychkov concluded the meeting in Nagoya with his closing remarks at noon.

2.4. Visit to Korea Oceanographic Data Center

The Korea Oceanographic Data Center (KODC) was established in 1974 as the National Oceanographic Data Center in the IOC/IODE. This visit in October 2002 was to understand the status of data management in the KODC and to make a closer cooperative relationship with the JODC on oceanographic data and information exchange.

The KODC is placed in the National Fisheries Research and Development Institute (NFRDI) located at the east end of Pusan, Korea. The NFRDI consists of Fisheries Resources Department, Aquaculture Department, Ocean and Marine Environment Department and Training Department as well as 3 branch offices and 5 oceanographic research vessels. The Director of the Oceanography Division, Ocean and Marine Environment Department hold a post concurrently as the Director of the KODC.

The KODC covers the following information, data, etc.:

- Cruise Summary Report (CSR)
  - Outlined cruise report by major oceanographic research organization
- Oceanographic data
  - Water temperature, Salinity, Dissolved oxygen, Nutrients, Marine weather
- Coastal fixed oceanographic data
  - Marine weather (including surface water temperature, atmospheric temperature, etc.)
- Sea surface temperature distribution chart (NOAA-AVHRR)

The fixed line observation data (22 observation lines, 175 observation points), coastal fixed observation data, etc., are made public on the Internet and downloadable from the KODC's homepage for everyone's use.

In addition to this, the KODC operates the North-East Asian Regional-Global Ocean Observing System Delayed Mode DataBase (NEAR-GOOS DMDB) of Korea. As for the Global Oceanographic Data Archaeology & Rescue project in the Western Pacific region (GODAR-WESTPAC) that the countries surrounding the West Pacific promote with the JODC as the project office, the digitalization of the paper-based water temperature, salinity, dissolved oxygen and zooplankton before 1961 possessed by the NFRDI is under way.

Lastly, the visit was concluded with the agreement on further mutual cooperative relationship and reinforcement of collaboration through the exchange of oceanographic data and information, the promotion of the GODAR-WESTPAC, etc.

Korea's Major Oceanographic Research Organizations

Ministry of Marine Affairs and Fisheries: MOMAF
- National Fisheries Research and Development Institute: NFRDI
  - (Korea Oceanographic Data Center: KODC)
  - (operating NEAR-GOOS Delayed Mode DataBase)
- National Oceanographic Research Institute: NORI
- National Maritime Police Agency: NMPA

Korean Ocean Research and Development Institute: KORDI
- (operating NEAR-GOOS Real Time DataBase)

2.5. Report of the 23rd IUGG General Assembly

The 23rd General Assembly of International Union of Geodesy and Geophysics (IUGG) was held in Sapporo from June 30 to July 11, 2003, and was attended by over 5,000 researchers from about 100 countries.

The JODC participated in the Global Ocean Observing System (GOOS) session held on July 7 and 8 jointly hosted by the International Association for the Physical Sciences of the Ocean (IAPSO), International Association of Geodesy (IAG) and Intergovernmental Oceanographic Commission (IOC) during the IUGG2003 and made a poster presentation on the outline and operational status of the Regional Delayed Mode Data Base (RDMDB: *http://near-goos1.jodc.go.jp/*) of the NEAR-GOOS (North-East Asian Regional-Global Ocean Observing System) and related JODC's activities concerning data management and provision, etc.

This session focused on the climate change study in the GOOS jointly promoted by the IOC and World Meteorological Organization (WMO), etc. A wide variety of many interesting presentations were made including the assimilation implemented in the Global Ocean Data Assimilation Experiment (GODAE), global ocean observation by the Argo, related observational technology and the processing of satellite data, etc. It was regrettable that so many researchers did not participated in the session, because most of sessions on the physical oceanography were held in the first week of the Assembly.

As for the coastal module as another pillar of the GOOS, the session of the "Coastal Ocean Observing System" was held to make presentations on advanced efforts of coastal observation systems combined buoys, observation submarines and acoustic technology, etc. However, this session had very few participants so that it resulted in the situation in which only ten-odd people were listening to the presentation in the large venue at the end of the oral presentation.

It was decided to hold the next General Assembly of IUGG in Perugia, Italy.

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

3.1. RNODC for WESTPAC

3.1.1. 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 III.

The CSRs received by JODC in 2003 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 2003

AGENCY	SHIP	AREA	PERIOD	DATA TYPE
FF, NU	KAKUYO MARU	North Pacific Ocean	2002/11/07 - 2002/12/24	B,H
NFRDI	TAMGU 3	East China Sea	2002/10/08 - 2002/10/18	B,D,H,M
NFRDI	TAMGU 5	Japan Sea	2002/10/17 - 2002/11/06	B,D,H,M
NFRDI	TAMGU 8	Yellow Sea	2002/10/09 - 2002/10/17	B,D,H,M
NFRDI	TAMGU 3	East China Sea	2002/12/23 - 2002/11/08	B,D,H,M
HMO, JMA	KOFU MARU	North Pacific Ocean	2002/10/04 - 2002/11/05	B,D,H,M,P
HMO, JMA	KOFU MARU	North Pacific Ocean	2002/11/19 - 2002/12/11	B,D,H,M
IRD	ALIS	Southwest Pacific Ocean	2001/03/29 - 2001/04/26	B,D,H
IRD	ALIS	Southwest Pacific Ocean	2001/06/19 - 2001/06/29	B,G,H
IRD	ALIS	Southwest Pacific Ocean	2001/08/16 - 2001/08/23	B,D,G,H
IRD	ALIS	Southwest Pacific Ocean	2001/09/19 - 2001/10/12	B,G,H
IRD	ALIS	Southwest Pacific Ocean	2001/11/06 - 2001/11/11	B,H,P
IRD	ALIS	Southwest Pacific Ocean	2001/12/03 - 2001/12/07	D,G
IPEV	ASTROLABE	Antarctic Ocean	2001/10/20 - 2002/03/09	H
IRD	ALIS	Coral Sea	2001/03/02 - 2001/03/10	B,D,G,H
IRD	ALIS	Coral Sea	2001/03/12 - 2001/03/19	B,H,P
IRD	ALIS	Coral Sea	2001/05/28 - 2001/06/12	B,G
IRD	ALIS	Coral Sea	2001/08/27 - 2001/09/04	B,D,H
IRD	ALIS	Coral Sea	2001/09/07 - 2001/09/12	D,G
IRD	ALIS	Coral Sea	2001/10/22 - 2001/10/31	B,D,G,H,M
IRD	ALIS	Coral Sea	2001/11/19 - 2001/11/28	B,G
GEOAZUR	NADIR	South Pacific Ocean	2000/09/06 - 2000/10/19	G
IRD	ALIS	South Pacific Ocean	2000/03/22 - 2000/03/31	B,D,G,H,P
IRD	ALIS	South Pacific Ocean	2000/04/13 - 2000/05/12	D,H,M
IRD	ALIS	Southwest Pacific Ocean	2000/10/07 - 2000/10/21	G
IRD	ATALANTE	Southwest Pacific Ocean	2000/02/29 - 2000/03/17	D,G,H,M
IFREMER	ATALANTE	Southwest Pacific Ocean	2000/02/29 - 2000/03/17	G
ENS	NADIR	Northeast Pacific Ocean	2000/06/09 - 2000/07/26	G
HOD, JCG	SHOYO	Philippine Sea	2002/06/27 - 2002/07/10	G
HOD, JCG	SHOYO	North Pacific Ocean	2002/09/11 - 2002/09/24	G
HOD, JCG	SHOYO	Philippine Sea	2002/10/28 - 2002/11/28	G
HOD, JCG	TAKUYO	Philippine Sea	2002/11/21 - 2002/12/19	G
HOD, JCG	SHOYO	North Pacific Ocean	2002/12/09 - 2002/12/24	G
HOD, JCG	TAKUYO	Philippine Sea	2003/01/10 - 2003/01/27	G
HOD, JCG	SHOYO	North Pacific Ocean	2002/08/09 - 2002/09/02	G
HOD, JCG	KAIYO	Philippine Sea	2002/10/20 - 2002/10/29	G
NFRDI	TAMGU 3	East China Sea	2002/12/03 - 2002/12/13	B,D,H,M
NFRDI	TAMGU 5	Japan Sea	2002/12/14 - 2003/01/08	B,D,H,M

AGENCY	SHIP	AREA	PERIOD	DATA TYPE
NFRDI	INCHON 888	Yellow Sea	2002/12/03 - 2003/01/01	B,D,H,M
MFHS	AICHI MARU	East Pacific Ocean	2003/01/-- - 2003/03/--	
HOD, JCG	MEIYO	North Pacific Ocean	2002/04/16 - 2002/05/01	
HOD, JCG	MEIYO	North Pacific Ocean	2002/05/10 - 2002/05/27	
HOD, JCG	TAKUYO	Philippine Sea	2003/02/19 - 2003/03/09	
HOD, JCG	MEIYO	North Pacific Ocean	2002/07/01 - 2002/07/15	
HOD, JCG	MEIYO	North Pacific Ocean	2002/08/05 - 2002/08/13	
HOD, JCG	KAIYO	North Pacific Ocean	2002/08/20 - 2002/08/28	
HOD, JCG	KAIYO	North Pacific Ocean	2002/09/11 - 2002/09/19	
HOD, JCG	KAIYO	North Pacific Ocean	2002/10/06 - 2002/10/15	
HOD, JCG	KAIYO	North Pacific Ocean	2002/11/04 - 2002/11/12	
HOD, JCG	MEIYO	North Pacific Ocean	2002/12/10 - 2002/12/19	
HOD, JCG	KAIYO	North Pacific Ocean	2003/01/15 - 2003/01/22	
HOD, JCG	MEIYO	North Pacific Ocean	2003/02/03 - 2003/02/14	
TFHS	ASHU MARU	North Pacific Ocean	2003/01/08 - 2003/03/20	
HMO, JMA	KOFU MARU	North Pacific Ocean, Japan Sea	2003/01/11 - 2003/03/03	B,D,H,M,P
ORI, UT	TANSEI MARU	Pacific Ocean	2002/05/19 - 2002/05/30	
HOD, JCG	SHOYO	North Pacific Ocean	2003/05/02 - 2003/05/19	
FF, NU	KAKUYO MARU	East China Sea	2003/05/19 - 2003/05/27	B,H
FS, KU	NAGASAKI MARU	North Pacific Ocean, East China Sea	2003/04/03 - 2003/04/18	B,G,H
FF, NU	NAGASAKI MARU	East China Sea	2003/04/21 - 2003/04/25	B,H
FF, NU	NAGASAKI MARU	East China Sea	2003/05/08 - 2003/05/16	D,G,H
UR	NAGASAKI MARU	East China Sea	2003/05/22 - 2003/06/09	B,G
ORI, UT	TANSEI MARU	Northwest Pacific Ocean	2002/06/15 - 2002/06/22	
ORI, UT	TANSEI MARU	North Pacific Ocean	2002/06/25 - 2002/07/02	
ORI, UT	TANSEI MARU	Philippine Sea	2002/08/22 - 2002/08/27	
HMO, JMA	KOFU MARU	North Pacific Ocean	2003/04/21 - 2003/05/29	B,D,H,M,P
HOD, JCG	SHOYO	North Pacific Ocean	2003/06/02 - 2003/06/05	G
RIAM, KU	KAKUYO MARU	Japan Sea	2003/06/14 - 2003/07/04	D,H,M,P
FF, NU	KAKUYO MARU	Japan Sea	2003/06/23 - 2003/06/25	B,D,H
FF, NU	KAKUYO MARU	East China Sea	2003/07/10 - 2003/07/21	B
HOD, JCG	SHOYO	Philippine Sea	2003/07/04 - 2003/07/28	G
NIPR	SHIRASE	Indian Ocean	2001/11/14 - 2002/04/13	D,H,P
HOD, JCG	TAKUYO	North Pacific Ocean	2003/07/29 - 2003/08/08	D,H
FS, KU	NAGASAKI MARU	North Pacific Ocean	2003/06/18 - 2003/07/04	G
RIAM, KU	NAGASAKI MARU	East China Sea	2003/07/10 - 2003/07/20	D,H
FF, NU	NAGASAKI MARU	East China Sea	2003/08/18 - 2003/09/06	B,H
FF, NU	NAGASAKI MARU	East China Sea	2003/09/13 - 2003/10/04	B,D,H
HOD, JCG	SHOYO	North Pacific Ocean	2003/08/26 - 2003/09/24	
HOD, JCG	TAKUYO	North Pacific Ocean	2003/04/18 - 2003/05/06	
HOD, JCG	TAKUYO	North Pacific Ocean	2003/05/16 - 2003/06/03	
NFRDI	TAMGU 3	East China Sea	2003/08/05 - 2003/08/13	B,D,H,M
NFRDI	TAMGU 5	Japan Sea	2003/08/09 - 2003/08/20	B,D,H,M
NFRDI	TAMGU 8	Yellow Sea	2003/08/04 - 2003/08/14	B,D,H,M
NFRDI	TAMGU 3	East China Sea	2003/08/22 - 2003/08/25	B,H,M
NFRDI	TAMGU 3	East China Sea	2003/06/11 - 2003/06/17	B,D,H,M
NFRDI	TAMGU 5	Japan Sea	2003/06/09 - 2003/06/17	B,D,H,M
NFRDI	TAMGU 8	Yellow Sea	2003/06/15 - 2003/06/21	B,D,H,M
NFRDI	TAMGU 3	East China Sea	2003/04/04 - 2003/04/25	B,D,H,M
NFRDI	TAMGU 5	Japan Sea	2003/04/10 - 2003/04/25	B,D,H,M
NFRDI	TAMGU 3	Yellow Sea	2003/04/10 - 2003/04/16	B,D,H,M
NFRDI	TAMGU 3	East China Sea	2003/05/27 - 2003/06/05	B,D,H,M
NFRDI	TAMGU 7	Marsden Square 132	2002/02/02 - 2002/02/07	G,H,P
NFRDI	TAMGU 7	Marsden Square 132	2002/05/12 - 2002/05/17	G,H,P

AGENCY	SHIP	AREA	PERIOD	DATA TYPE
NFRDI	TAMGU 7	Marsden Square 132	2002/08/05 - 2002/08/10	H,P
NFRDI	TAMGU 7	Marsden Square 132	2002/11/12 - 2002/11/18	G,H,P
NFRDI	TAMGU 6	Japan Sea	2002/02/21 - 2002/02/25	G,H,P
NFRDI	TAMGU 6	Japan Sea	2002/08/04 - 2002/08/08	H,P
NFRDI	TAMGU 6	Japan Sea	2002/11/30 - 2002/12/12	H,P
NFRDI	TAMGU 6	Japan Sea	2002/02/04 - 2002/02/17	G,H,P
NFRDI	TAMGU 6	Japan Sea	2002/05/13 - 2002/05/22	H,P
NFRDI	TAMGU 6	Japan Sea	2002/08/13 - 2002/08/22	H,P
NFRDI	TAMGU 6	Japan Sea	2002/11/19 - 2002/11/29	H,P
NFRDI	TAMGU 11	Marsden Square 132	2002/02/05 - 2002/02/08	G,H,P
NFRDI	TAMGU 11	Marsden Square 132	2002/05/14 - 2002/05/18	H,P
NFRDI	TAMGU 11	Marsden Square 132	2002/08/12 - 2002/08/14	H,P
NFRDI	TAMGU 11	Marsden Square 132	2002/11/05 - 2002/11/08	H,P
NFRDI	TAMGU 9	Marsden Square 132	2002/02/04 - 2002/02/08	G,H,P
NFRDI	TAMGU 9	Marsden Square 132	2002/05/06 - 2002/05/10	H,P
NFRDI	TAMGU 9	Marsden Square 132	2002/08/01 - 2002/08/04	H,P
NFRDI	TAMGU 10	Marsden Square 132	2002/11/12 - 2002/11/15	H,P
NFRDI	TAMGU 10	Marsden Square 132	2002/02/06 - 2002/02/08	G,H,P
NFRDI	TAMGU 10	Marsden Square 132	2002/05/01 - 2002/05/03	H,P
NFRDI	TAMGU 10	Marsden Square 132	2002/08/01 - 2002/08/02	H,P
NFRDI	TAMGU 10	Marsden Square 132	2002/11/14 - 2002/11/15	H,P
NFRDI	TAMGU 16	Marsden Square 132	2002/02/15 - 2002/02/16	G,H,P
NFRDI	TAMGU 16	Marsden Square 132	2002/05/13 - 2002/05/14	H,P
NFRDI	TAMGU 16	Marsden Square 132	2002/08/01 - 2002/08/02	H,P
NFRDI	TAMGU 16	Marsden Square 132	2002/11/05 - 2002/11/06	H,P
NFRDI	TAMGU 2	Yellow Sea	2002/02/01 - 2002/02/07	G,H,P
NFRDI	TAMGU 2	Yellow Sea	2002/05/01 - 2002/05/07	H,P
NFRDI	TAMGU 2	Yellow Sea	2001/08/08 - 2001/08/14	H,P
NFRDI	TAMGU 2	Yellow Sea	2002/11/07 - 2002/11/14	H,P
NFRDI	TAMGU 15	Yellow Sea	2002/02/12 - 2002/02/17	G,H,P
NFRDI	TAMGU 15	Yellow Sea	2002/05/08 - 2002/05/11	H,P
NFRDI	TAMGU 15	Yellow Sea	2002/08/09 - 2002/08/12	H,P
NFRDI	TAMGU 15	Yellow Sea	2002/11/05 - 2002/11/10	H,P
NFRDI	TAMGU 9	Japan Sea	2002/02/19 - 2002/02/22	B,H
NFRDI	TAMGU 9	Japan Sea	2002/03/19 - 2002/03/22	B,H
NFRDI	TAMGU 9	Japan Sea	2002/04/22 - 2002/04/25	B,H
NFRDI	TAMGU 9	Japan Sea	2002/05/14 - 2002/05/17	B,H
NFRDI	TAMGU 9	Japan Sea	2002/06/19 - 2002/06/22	B,H
NFRDI	TAMGU 9	Japan Sea	2002/07/23 - 2002/07/26	B,H
NFRDI	TAMGU 9	Japan Sea	2002/08/16 - 2002/08/18	B,H
NFRDI	TAMGU 9	Japan Sea	2002/09/23 - 2002/09/26	B,H
NFRDI	TAMGU 9	Japan Sea	2002/10/14 - 2002/10/17	B,H
NFRDI	TAMGU 9	Japan Sea	2002/11/18 - 2002/11/21	B,H
NFRDI	TAMGU 1	Japan Sea	2002/03/07 - 2002/03/26	B,H
NFRDI	TAMGU 1	Japan Sea	2002/10/15 - 2002/11/02	B,H
NFRDI	TAMGU 1	Indian Ocean	2002/05/05 - 2002/07/25	B,G,H,M
NFRDI	TAMGU 1	Pacific Ocean	2002/08/24 - 2002/09/28	B,H
NORI	HAE YANG 2000	Japan Sea	2002/01/29 - 2002/02/28	D,H,M
NORI	BADARO 2	Japan Sea	2002/04/10 - 2002/05/05	D,H,M
NORI	HAE YANG 2000	East China Sea	2002/04/01 - 2002/10/26	G
NORI	BADARO 3	East China Sea	2002/03/21 - 2002/05/05	D,G
NORI	NAMHAERO	Marsden Square 132	2002/05/01 - 2002/08/15	G
NORI	BADARO 3	Marsden Square 132	2002/05/21 - 2002/07/05	D
NORI	DONGHAERO	Japan Sea	2002/05/01 - 2002/08/31	G
NORI	BADARO 3	Yellow Sea	2002/08/01 - 2002/09/14	D
NORI	HWANGHAERO	Yellow Sea	2002/05/01 - 2002/09/30	G

AGENCY	SHIP	AREA	PERIOD	DATA TYPE
NMPA	TAMGU 8	Yellow Sea	2002/01/31 - 2002/02/11	B,H,P
NMPA	TAMGU 5	Japan Sea	2002/02/20 - 2002/02/23	B,H,P
NMPA	PREVENTION SHIP 19	Yellow Sea	2002/05/06 - 2002/05/08	B,H,P
NMPA	PREVENTION SHIP 16	Japan Sea	2002/05/14 - 2002/05/21	B,H,P
NMPA	TAMGU 8	Yellow Sea	2002/08/06 - 2002/08/14	B,G,H,P
NMPA	TAMGU 5	Japan Sea	2002/08/17 - 2002/08/23	B,H,P
NMPA	PREVENTION SHIP 19	Yellow Sea	2002/11/19 - 2002/11/23	B,H,P
NMPA	PREVENTION SHIP 16	Japan Sea	2002/11/22 - 2002/11/29	B,H,P
KIGAM	TAMHAE 2	Japan Sea	2002/05/13 - 2002/06/08	G
KIGAM	TAMHAE 2	Yellow Sea	2002/04/09 - 2002/05/02	G
KORDI	Fishery Ship	Jinhae Bay	2002/01/29 - 2002/01/30	B,G,H
KORDI	Fishery Ship	Gwangyang Bay	2002/02/18 - 2002/02/20	B,G,H,P
KORDI	EARDO	Japan Sea	2002/03/15 - 2002/03/20	G
KORDI	Fishery Ship	Gwangyang Bay	2002/04/22 - 2002/04/24	B,G,H
KORDI		Jinhae Bay	2002/05/01 - 2002/05/02	B,D,G,H
KORDI	Fishery Ship	Gwangyang Bay	2002/06/25 - 2002/06/27	B,G,H,P
KORDI	Fishery Ship	Jinhae Bay	2002/08/26 - 2002/08/27	B,G,H
KORDI	Fishery Ship	Gwangyang Bay	2002/08/27 - 2002/08/29	B,G,H,P
KORDI	Fishery Ship	Gwangyang Bay	2002/10/23 - 2002/10/25	B,G,H,P
KORDI	YUZHMORGEOLOGIYA	Antarctic Ocean	2002/11/21 - 2002/12/31	B,G,H
KORDI		Jinhae Bay	2002/11/26 - 2002/11/27	B,G,H
KORDI	Fishery Ship	Gwangyang Bay	2002/12/17 - 2002/12/19	B,G,H,P
NFRDI	TAMGU 3	East China Sea	2003/02/06 - 2003/02/13	B,D,H,M
NFRDI	TAMGU 5	Japan Sea	2003/02/13 - 2003/02/28	B,D,H,M
NFRDI	TAMGU 8	Yellow Sea	2003/02/07 - 2003/02/15	B,D,H,M
NFRDI	TAMGU 1	East China Sea	2003/02/15 - 2003/02/17	B,D,H,M
NFRDI	TAMGU 6	Japan Sea	2002/05/03 - 2002/05/10	H,P
FF, NU	NAGASAKI MARU	East China Sea	2003/10/17 - 2003/10/28	B,H

Data Type Code

B: Biology & Fisheries
D: Physical Oceanography (Current)
G: Geology & Geophysics
H: Physical (Salinity & Temperature) & Chemical Oceanography
M: Meteorology
P: Contamination

Abbreviations of Agencies

Japan

HOD, JCG: Hydrographic and Oceanographic Department, Japan Coast Guard
HMO, JMA: Hakodate Marine Observatory, Japan Meteorological Agency
NIPR: National Institute of Polar Research
ORI, UT: Ocean Research Institute, University of Tokyo
FF, NU: Faculty of Fisheries, Nagasaki University
FS, KU: Faculty of Science, Kyushu University
RIAM, KU: Research Institute for Applied Mechanics, Kyushu Univ.
UR: University of Ryukyus
MFHS: Aichi Prefectural Miya Fishery High School
TFHS: Tokushima Fisheries High School

Korea

NFRDI: National Fisheries Research and Development Institute
NORI: National Oceanographic Research Institute
NMPA: National Maritime Police Agency
KORDI: Korea Ocean Research & Development Institute
KIGAM: Korea Institute of Geoscience and Mineral Resources

France

IFREMER: Institut Francais de Recherche pour l'Exploitation de la MER
IRD: Institut de Recherche pour le Developpement
IPEV: Institut Polaire Francais Paul Emile Victor
ENS: Laboratoire de Geologie, l'Ecole Normale Superieure
GEOAZUR: Geosciences Azur, Universite Nice Sophia Antipolis

Table 2 Number of Archived Data in the WESTPAC Region

YEAR	SD	STD	CTD	XCTD	XBT	DBT	AXBT	BT	GEK	DRIFT	ADCP	unknown
1979	7,203	47	2,499	0	8,090	672	0	17,076	5,223	118	0	12,357
1980	8,135	643	2,167	0	11,625	2,257	0	17,052	6,215	186	0	12,666
1981	6,796	120	2,824	0	9,111	2,337	1,231	16,825	5,982	215	0	12,825
1982	7,819	214	2,790	0	11,040	2,870	509	15,076	6,035	52	0	12,761
1983	7,896	368	3,913	0	11,426	3,068	824	13,290	6,016	109	0	12,386
1984	5,932	3	4,609	0	11,610	3,822	860	15,736	7,059	68	0	12,776
1985	5,386	463	5,544	0	14,888	3,476	1,059	12,755	5,471	85	1,943	12,342
1986	8,526	269	5,770	0	16,955	2,365	1,502	11,600	5,793	29	6,198	9,822
1987	10,091	231	6,970	0	17,807	1,700	1,272	12,907	4,971	4	6,590	6,657
1988	10,250	0	9,807	0	19,590	852	1,177	9,832	2,811	248	11,140	5,641
1989	8,946	0	10,487	0	18,585	475	1,323	7,796	1,624	314	54,955	4,675
1990	8,943	328	10,491	0	23,356	1,093	1,305	6,271	871	311	67,386	4,477
1991	6,061	0	13,559	0	23,141	1,405	1,509	1,825	841	348	45,238	3,506
1992	4,381	105	14,869	0	25,543	18	1,199	1,124	216	227	51,713	3,482
1993	3,416	119	13,195	0	38,190	1,312	2,651	1,420	152	20	78,631	3,113
1994	1,328	128	765	0	29,397	109	1,434	7,763	24	0	14,824	0
1995	1,171	0	254	0	42,368	115	3,047	659	97	0	301,056	0
1996	1,089	0	312	0	32,864	208	2,645	344	0	0	831,511	0
1997	1,206	0	778	0	9,682	242	2,757	91	0	0	607,834	0
1998	1,067	0	578	0	10,983	178	3,116	101	0	0	574,192	0
1999	856	0	318	0	9,679	208	1,017	56	0	0	496,561	0
2000	865	0	1,609	0	11,011	155	13	72	0	0	63,460	0
2001	841	0	1,584	0	11,787	146	3,737	7	0	0	0	0
2002	0	0	0	0	1,498	0	26	0	0	0	0	0
2003	0	0	0	14	771	0	0	0	0	0	0	0
Total	**118,204**	**3,038**	**115,692**	**14**	**420,997**	**29,083**	**34,213**	**169,678**	**59,401**	**2,334**	**3,213,232**	**129,486**

Data Items

SD: Serial station Data
STD: Salinity, Temperature, Depth profiler
CTD: Conductivity, Temperature, Depth profiler
XCTD: eXpendable Conductivity, Temperature, Depth profiler
XBT: eXpendable BathyThermograph
DBT: Digital memorial BathyThermograph
AXBT: Airborne eXpendable BathyThermograph
BT: BathyThermograph
GEK: Geomagnetic ElectroKinetograph
DRIFT: ship DRIFT
ADCP: Acoustic Doppler Current Profiler

3.1.2. NEAR-GOOS RDMDB

The NEAR-GOOS (North-East Asia Regional – Global Ocean Observing System) has been implemented as regional GOOS by Russia, China, Korea and Japan. The NEAR-GOOS RDMDB (Regional Delayed Mode Data Base) undertakes the final management of the oceanographic and marine meteorological data of the NEAR-GOOS.

The JODC has managed and operated the RDMDB based on the Recommendation of the 1st NEAR-GOOS Coordinating Committee held in 1996. The RDMDB started to operate as a DMDB in October 1996 and was given the status of the RDMDB by the Recommendation of the 3rd Coordinating Committee in August 1998, and at the same time the registration application procedure was abolished to activate its use. In addition, the provision of data to the anonymous users using guest account became possible based on the approval of the 7th NEAR-GOOS Coordinating Committee in October 2002. Incidentally, the user name of guest account is *guest@onetime*.

In the current system, each country's NRTDB (National Real Time Data Base) is supposed to collect data and send it to its own country's NDMDB (National Delayed Mode Data Base) and the RRTDB (Regional Real Time Data Base) operated by the Japan Meteorological Agency. The NDMDB independently collects the delayed mode data other than the data received from the NRTDB. The RDMDB receives the data collected by each country's NRTDB via the RRTDB and collects the delayed mode data from other sources to provide data for the users with monthly update.

At first, the data to be registered in the DMDB were only 6 items, which were collected by the RTDB via the GTS. With the items added every year, the data to be registered in the RDMDB today are up to 32 items. Below is the main part of the data items:

- Oceanographic data obtained by the Meteorological Agency via the GTS
  (BATHY, BUOY, SHIP, TESAC, TRACKOB)
- Data converted into unified format by RRTDB
  (Water Temperature, Salinity, Wind)
- Average water temperature data developed by the Meteorological Agency
  (Serial Station, Sea Surface)
- Tide data with 30-second interval by the Japan Coast Guard
- Water temperature data provided by the Russia Far Eastern Regional Hydrometeorological Research Institute
- Water temperature data provided by the Japan Fisheries Information Service Center (JAFIC)
- Water temperature data provided by the Ocean Research Institute of the University of Tokyo
- XBT observation data provided by the Tohoku University
- Wave observation data provided by the Port and Airport Research Institute
- Quality controlled data by the Canada Marine Environmental Data Service (MEDS)
  (Water Temperature, Salinity)

The data registered in the RDMDB can be obtained through the Internet. The RDMDB data provision system displays a list of data by item and by period so that data can easily be obtained only by selecting the item on the screen. The URL of the RDMDB data provision system is given below.

http://near-goos1.jodc.go.jp/index.html

Archived data type and volume of NEAR-GOOS RDMDB is shown in Table 3.

Table 3 Data Type and Volume of NEAR-GOOS RDMDB

TYPE OF DATA	DESCRIPTION OF DATA	PERIOD	VOLUME(MB)
BATHY	Regional Datasets of BATHY Report	Jun,1996 -	9.6
BATHY_G	Global Datasets of BATHY Report	Apr,2000 -	17.1
BUOY	Regional Datasets of BUOY Report	Jun,1996 -	127.7
BUOY_G	Global Datasets of BUOY Report	Apr,2000 -	1,675.7
SHIP	Regional Datasets of SHIP Report	Jun,1996 -	129.7
SHIP_G	Global Datasets of SHIP Report	Apr,2000 -	1,055.3
TESAC	Regional Datasets of TESAC Report	Sep,1998 -	11.1
TESAC_G	Global Datasets of TESAC Report	Jan,1996 -	99.2
TRACKOB	Regional Datasets of TRACKOB Report	Jun,1996 -	0.6
TRACKOB_G	Global Datasets of TRACKOB Report	Apr,2000 -	6.8
SUBST	Subsurface Temperature Decode Result	Jun,1997 -	337.5
SUBST_ERROR	Subsurface Temperature Decode Error Report	Jun,1997 -	4.6
TS	Temperature and Salinity Decode Result	Jul,2001 -	208.4
GLBTS	Global Temperature and Salinity Decode Result	Aug,2001 -	2,776.8
WIND	Wind Data Decode Result	Jan,1998 -	90.1
WIND_ERROR	Wind Data Decode Error Report	Jan,1998 -	1.0
WIND2	Wind Data (Format Ver.2.0)	Jul,2001 -	50.6

TYPE OF DATA	DESCRIPTION OF DATA	PERIOD	VOLUME(MB)
GLBWIND	Global Wind Data Decode Result	Aug,2001 -	710.8
SSTANL	Gridded Daily Sea Surface Temperature Data in the Northwest Pacific	Jun,1996 - May,2000	95.7
DAILYSST(JMA)	Daily Sea Surface Temperature Data Analysis	Apr,2000 -	74.9
WNPSST(JMA)	10-day Mean Sea Surface Temperature in the Northwest Pacific	Apr,2000 -	1.9
GLBSST(JMA)	Global Monthly Mean Sea Surface Temperature	Apr,2000 -	1.8
ADJSUBS(JMA)	Monthly Mean Subsurface Temperature in Seas Around Japan (100m,200m,400m)	Mar,2000 -	5.0
PACSUBS(JMA)	Monthly Mean Subsurface Temperature in Pacific (100m,200m,400m)	Mar,2000 -	8.6
SSDH(JMA)	Analyzed Sea Surface Dynamic Height in the Pacific	Jan,2003 -	41.7
SSHA(JMA)	Analyzed Sea Surface Height Anomalies in the Pacific	Jan,2003 -	41.7
SEA_ICE	Sea Ice Concentration in the Northeast Asia marginal Seas	Dec,2003 -	12.9
GTSPP	GTSPP Quality Controlled Subsurface Temperature and Salinity Data Provided by MEDS	Jan,2003 -	36.4
FERHRI ship	Marine Meteorological Onboard Observation Data by FERHRI, Russia	Sep,1997 -	3.7
FERHRI station	Marine Meteorological Observation Data at the Station by FERHRI, Russia	Apr,2002 -	0.2
JAFIC	Sea Surface / Subsurface Temperature Data from Japan Fisheries Information Service Center	Jul,1998 -	33.1
PALACE	Subsurface Temperature Profile Data Observed by PALACE Float of Ocean Research Institute, University of Tokyo	Aug,1998 - Nov,2000	0.1
TOHOKU Univ.	XBT Data Observed by Tohoku University	Nov,1999 - Sep,2000	0.1
NOWPHAS	Japanese Nationwide Coastal Wave Data by Port and Airport Research Institute	Jan,2001 - Dec,2001	17.1
30s_TIDEST	30-sec. Interval Sea Tide Data at Tidal Stations of Japan Coast Guard	Jan,1999 -	3,599.2
Total			**11,286.7**

3.1.3. 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 7th IOC/WESTPAC Training Course on NEAR-GOOS Data Management was held at JODC, 10 November - 21 November 2003. Seven persons participated in the training course, from China, Indonesia, the Republic of Korea, Philippines, the Russian Federation, Thailand, and Vietnam.

In this course, JODC invited lecturers from WDC for Oceanography, Ocean Research Institute University of Tokyo, Japan Meteorological Agency, and Marine Information Research Center.

Dr. Sydney Levitus of WDC for Oceanography gave lectures on GODAR project, the relation between the collected data and World Ocean Database (WOD), and global rise in water temperature viewed from data analysis.

Participants list and Course programme of the training course are introduced in ⁋Annex IV and ⁋V.

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 VI.

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 294 sheets of the log sheets were submitted by KODC in 2003. Data Holding Status is shown in Table 4 and Station Plots are shown in Fig. 6-1 and Fig. 6-2.

Table 4 Data Holding Status of IGOSS BATHY/TESAC

YEAR	BATHY	TESAC
1982	22,677	710
1983	25,478	5,443
1984	22,980	7,068
1985	26,079	5,784
1986	31,044	5,640
1987	40,301	6,580
1988	32,245	5,074
1989	27,933	4,966
1990	30,027	4,947
1991	22,731	2,137
1992	34,071	1,303
1993	35,058	2,153
1994	32,721	2,619
1995	33,908	2,207
1996	34,722	2,221
1997	37,993	1,427
1998	20,772	4,870
1999	19,701	9,632
2000	22,063	8,238
2001	26,998	21,126
2002	26,446	24,204
2003	23,859	45,565
Total	**629,807**	**173,914**

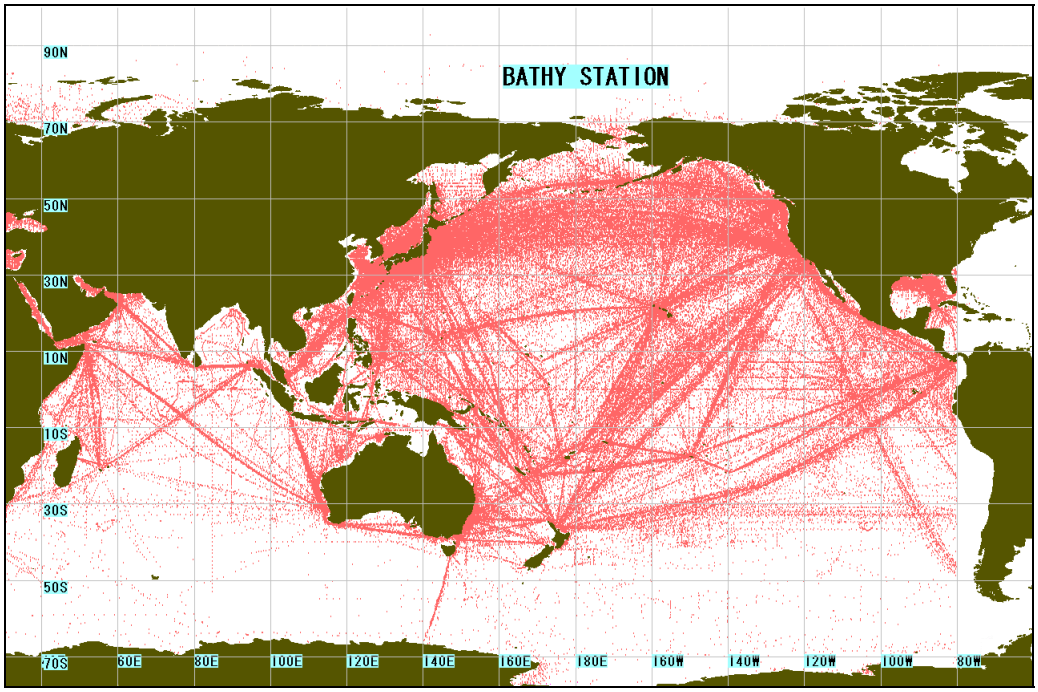


Fig. 6-1 Station Plots for BATHY

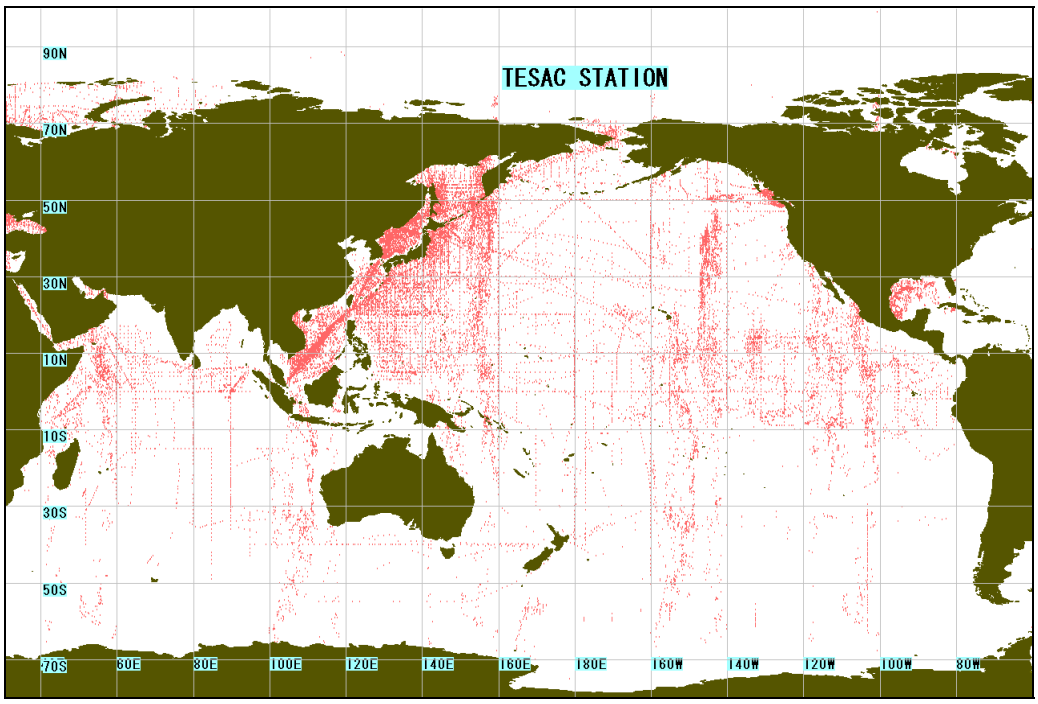


Fig. 6-2 Station Plots for TESAC

3.3. RNODC for 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 VII.

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. Station Plots are shown in Fig. 7 and Data holding status is shown in Table 5.

With regard to other type of Marine Pollution data, the present holding status of these data in JODC is introduced in Table 6, and the Station Plots of the cadmium, lead and polychlorinated biphenyls data are indicated as Fig. 8-1, Fig. 8-2 and Fig. 8-3, respectively.

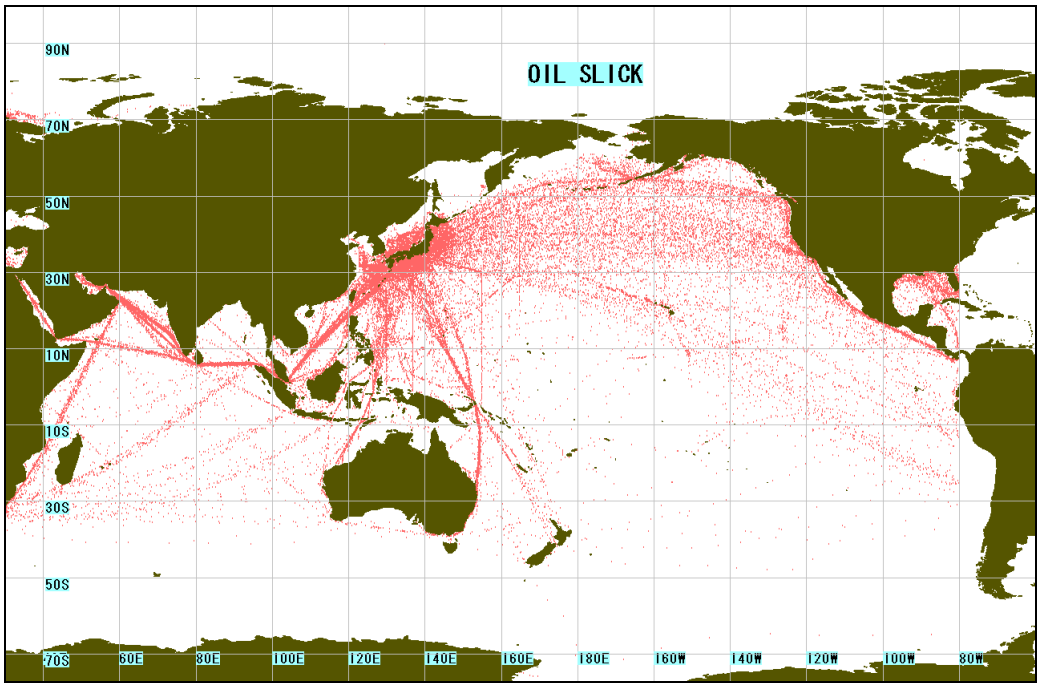


Fig. 7 Station Plots for Oil Slick

Table 5 Number of Archived Data for MARPOLMON

YEAR	BEACH TAR	TAR BALL	HYDRO CARBON	OIL SLICK
1973	0	341	0	0
1974	0	229	10	1,493
1975	404	1,059	604	16,712
1976	799	1,096	722	16,236
1977	740	738	877	19,683
1978	665	606	482	22,580
1979	676	384	387	14,699
1980	581	504	423	5,988
1981	570	501	362	3,948
1982	588	459	334	1,122
1983	560	585	329	583
1984	588	417	98	277
1985	582	449	239	382
1986	624	536	81	865
1987	638	598	62	1,015
1988	653	495	65	1,492
1989	679	564	68	1,948
1990	650	527	65	1,674
1991	647	467	60	1,286
1992	634	441	61	1,215
1993	618	420	60	991
1994	588	346	52	1,221
1995	583	324	53	1,517
1996	0	119	71	1,413
1997	0	110	86	1,783
1998	0	90	26	2,152
1999	10	95	65	1
2000	543	146	0	0
2001	540	123	0	0
Total	**14,160**	**12,769**	**5,742**	**122,276**

Table 6 Number of Data Related Marine Pollution

DATA TYPE	NUMBER	DATA TYPE	NUMBER
COD	1,945	PCB	1,513
NH4-N	3,777	As	1,022
Chlorophyll-a	97,912	Pb	1,020
Phaeophytin	19,339	Hg	2,042
TOC	1,025	Total-Hg	1,973
HC	1,949	Cd	3,594

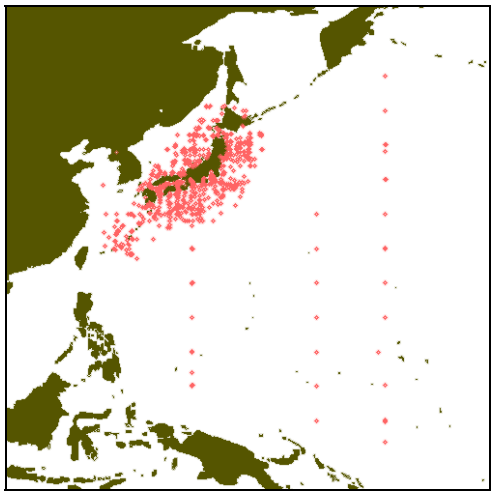


Fig. 8-1 Station Plots for Cd Data in the Northwest Pacific Ocean

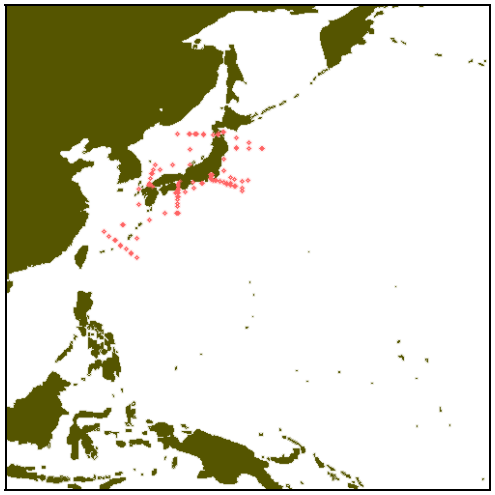


Fig. 8-2 Station Plots for Pb Data in the Northwest Pacific Ocean

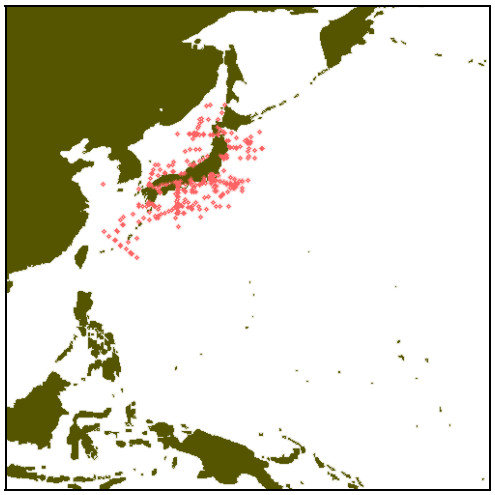


Fig. 8-3 Station Plots for PCB Data in the Northwest Pacific Ocean

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 VIII.

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 7 and Station Plots are shown in Fig. 9-1 and Fig. 9-2.

Table 7 Number of Archived Data for ADCP

YEAR	NUMBER	YEAR	NUMBER	YEAR	NUMBER
1985	3,545	1991	58,973	1997	631,398
1986	3,024	1992	103,309	1998	555,607
1987	4,945	1993	128,053	1999	498,242
1988	13,572	1994	49,660	2000	236,496
1989	61,289	1995	315,272	2001	140,895
1990	73,460	1996	809,245	2002	56,169
Total					**3,743,154**

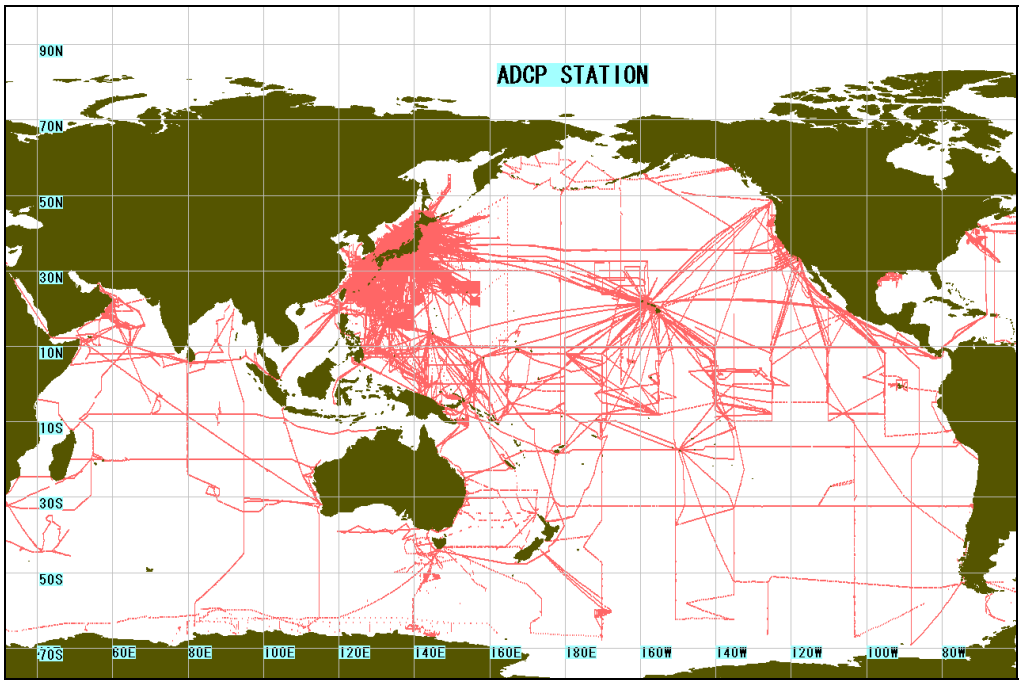


Fig. 9-1 Station Plots for ADCP Data in the Indian Ocean and the Pacific Ocean

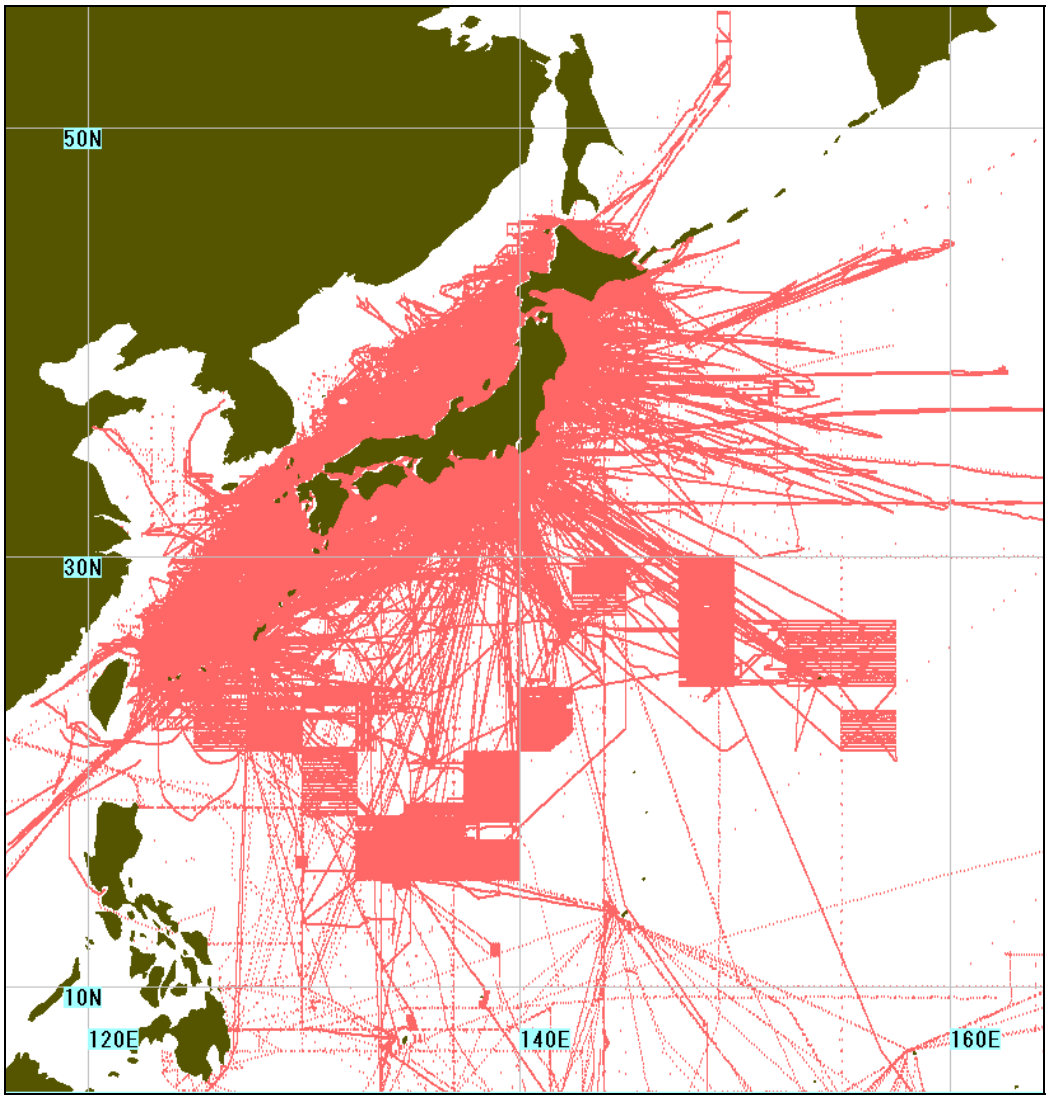


Fig. 9-2 Station Plots for ADCP Data in the Northwest Pacific Ocean

ANNEX I.
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 II.
IOC Oceanographic Data Exchange Policy
(Rev. June, 2003)

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 programmes in this regard, the Member States of the Intergovernmental Oceanographic Commission agree that the following clauses shall frame the IOC 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 programmes.

Clause 2

Member States are encouraged to provide timely, free and unrestricted access to relevant data and

associated metadata from non-IOC programmes 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

With the objective of encouraging the participation of governmental and non-governmental marine data gathering bodies in international oceanographic data exchange and maximizing the contribution of oceanographic data from all sources, this Policy acknowledges the right of Member States and data originators to determine the terms of such exchange, in a manner consistent with international conventions, where applicable.

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 programmes 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) programme and through other relevant IOC programmes.

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 III.
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 Co-ordinators 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 IV.
Participants List of the 7th IOC/WESTPAC Training Course

- **Ms. Nanyan Huang** **P.R. of China**
  National Marine Data and Information Service,
  State Oceanic Administration
- **Mr. Muhamad Jafar Elly** **Indonesia**
  Research Center for Oceanography,
  Indonesian Institute of Science
- **Mr. Yong Huh** **Rep. of Korea**
  National Oceanographic Research Institute
- **Mr. Rene G. Eclarino** **Philippines**
  Coast and Geodetic Surveys Department,
  National Mapping and Resource Information Authority
- **Mr. Vladimir Rostov** **Russian Federation**
  Far Eastern Branch,
  Pacific Oceanological Institute
- **Ms. Sirirat Boonsopa** **Thailand**
  Hydrographic Department,
  Royal Thai Navy
- **Dr. Dung Tran Tuan** **Vietnam**
  National Center for Natural Science and Technology,
  Hanoi Institute of Oceanography

ANNEX V.
Course Programme of the 7th IOC/WESTPAC Training Course

Monday, 10 November 2003

Morning: **Opening Ceremony** and **Course Orientation**

Afternoon: **Lecture** on Outline about IOC, WESTPAC, NEAR-GOOS and other Projects
by Mr. Satoshi Sato, JODC

Tuesday, 11 November 2003

Morning: **Lecture** on NEAR-GOOS Regional Real Time DataBase
by Mr. Takashi Yoshida, Japan Meteorological Agency (JMA)

Afternoon: **Study Visit** to Japan Meteorological Agency
Special Lecture about GODAR
by Dr. Sydney Levitus, World Data Center for Oceanography, Silver Spring

Wednesday, 12 November 2003

Morning: **Study Visit** to Argo International Workshop

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

Thursday, 13 November 2003

Morning: **Lecture** on CTD and BT Data Processing
by Mr. Taiji Imoto, JHOD

Afternoon: **Study Visit** to Survey Vessel TAKUYO

Friday, 14 November 2003

Morning: **Study Visit** to National Research Institute of Fisheries Science (NRIFS)

Afternoon: **Study Visit** to Japan Marine Science and Technology Center (JAMSTEC)

Monday, 17 November 2003

Morning: **Lecture** on Marine Chemical Data Processing
by Dr. Sachiko Oguma, Marine Information Research Center (MIRC)

Afternoon: **Lecture** on Marine Biological Data Processing
by Prof. Dr. Makoto Terazaki, Ocean Research Institute, University of Tokyo

Tuesday, 18 November 2003

Morning: **Lecture** on Tidal Data Processing
by Mr. Tomotaka Ito, JHOD

Afternoon: **Lecture** on Ocean Current Data Processing
by Prof. Dr. Yutaka Michida, Ocean Research Institute, University of Tokyo

Wednesday, 19 November 2003

Morning: **Lecture** on Oceanographic Data and Information Management in JODC
by Mr. Yoshihiko Sugiyama and Mr. Tsuyoshi Chiba, JODC

Afternoon: **Lecture** on NEAR-GOOS Regional Delayed Mode DataBase
and JODC Data On-line Service System
by Mr. Yoshihiko Sugiyama, JODC
Practice in On-line Database and Ocean Data View

Thursday, 20 November 2003

Practice in Data Quality Control and Data Management with the IODE Resource Kit

Friday, 21 November 2003

Morning: **Course Evaluation** and **Closing Ceremony**

Afternoon: **Customized Special Study**

ANNEX VI.
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 centres;
- 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 inventories for areas of responsibility;
- Prepare products based on operational and non-operational IGOSS data, as appropriate;
- Transmit to the WDCs datasets in GF-3 format, inventories and selected data products;
- Prepare summary 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 as feasible in IOC training programmes;
- Provide for exchange of documentation and software regarding quality control and processing procedures, with other RNODCs as possible.

ANNEX VII.
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 Centres A and B (Oceanography);
- Provide machine listings and simple statistics of marine pollution data;
- Produce graphics of marine pollution data, for use of concerned Member States.

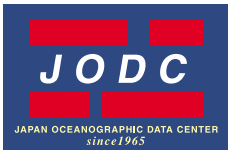
D. Training

The RNODC-MARPOLMON will conduct formal or informal training sessions for data centre personnel involved in the programme 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 IOC and the RNODC.

ANNEX VIII.
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

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