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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.17
March 2006

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

Preface

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

This Report is a compilation on JODC's activity related to IOC/IODE in 2005 and is mainly intended to notify the current dissemination and utilization of data in JODC.

As you may already know, IODE had been carrying out reviews of its activities and discussed reorganization in IODE-XVIII which was held in Ostend, Belgium in April 2005. Despite of effective activities of some of the RNODCs including RNODC for WESTPAC, other RNODCs are thought to be not so active and recommendation to abolish RNODCs were presented. IODE-XVIII decided to abolish RNODCs and instructed the ODIN projects to incorporate the resources of existing regional RNODCs. ODIN stands for Ocean Data and Information Network and some ODINs had been established such as ODINAFRICA.

One month later from IODE-XVIII, IOC/WESTPAC-VI was held in Nha Trang, Viet Nam (May 2005). A proposal to establish ODIN in WESTPAC region was discussed and IOC/WESTPAC-VI decided to establish an inter-sessional working group to establish ODIN in WESTPAC region. Discussions within this inter-sessional working group are progressing and will proceed further involving all the WESTPAC Member States in the near future.

I would like to emphasize that the IOC/WESTPAC Sub-Commission further recommended, although acknowledging the decision of the IODE Programme to abolish the RNODC and IODE Regional Coordinators systems, maintaining the RNODC-WESTPAC as an interim measure, at least until the establishment of an ODINWESTPAC. Accordingly, JODC will continue to fill the role of RNODC-WESTPAC until ODINWESTPAC is established. Therefore, I would like to ask all the related organizations and researchers to keep cooperation with us.

March 2006
Teruo Kanazawa
Director of Japan Oceanographic Data Center

CONTENTS

1. Topics in JODC

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

1.1.1. Update of the Data

The following are the data updated in 2005:

- **Tide data**
  Data period: 2003 to 2004
- **Serial Station Data**
  - CTD
    Data period: 1985 to 2003
  - BT
    Data period: 1980 to 2005
  - XCTD
    Data period: 2004
- **Marine Organisms Observation Data**
  Data period: 1980 to 2002
- **Coastal Marine Meteorological Data**
  Data period: 2003 to 2004
- **Sea surface water temperature Data**
  Data period: 2003

1.1.2. New Data Type

(1) Mooring Observation Data

Mooring Observation Data shows the following information.
The data of observation value and smoothing value of direction velocity was obtained by tidal stream observation on every observing point more than 15 day and night.

The data of direction velocity, water temperature, and electrical conductivity was obtained with ANDERA Current Meter on every observing point in the depth of thousands of meters in the Sea of Japan or the Pacific Ocean.

The harmonic constant of tidal stream observation is not displayed. Please ask “Marine Information Service Office” for more acquiring information.”

Source of data: Domestic organizations concerned
Sea Region: Ocean space around Japan
Observation period: 1967 – 2001
The amount of data: 2201 point

(2) MGD77 (Bathymetry, Geomagnetism, Gravity)

MGD77 data is displayed by every one file per one cruise (voyage).
Each file is separated by two records as below:

Header Record: Voyage information, such as the observation method, observation machine, and data-processing method, etc. is recorded.

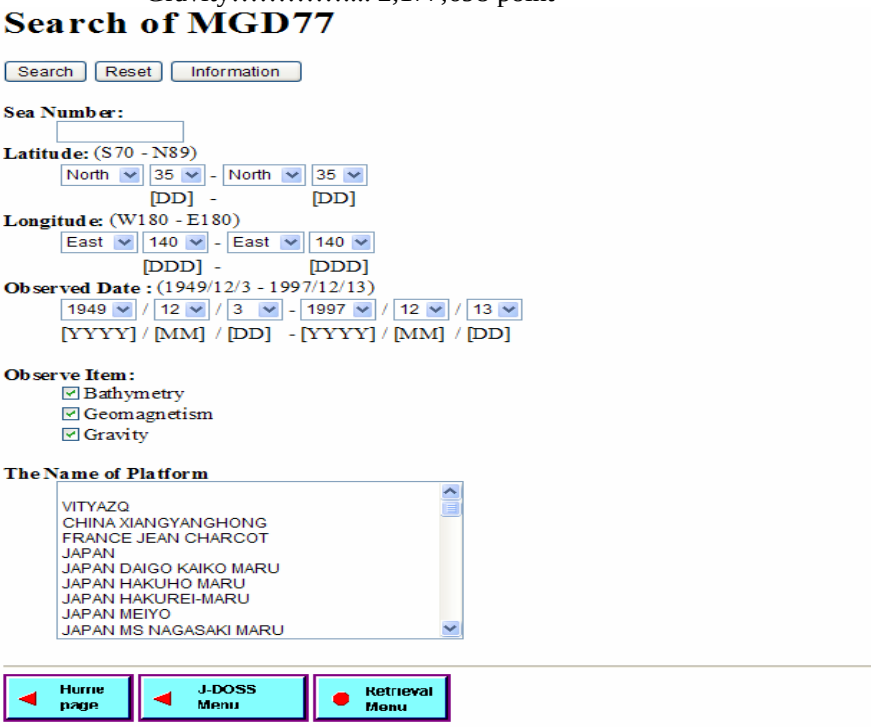
Data Record: Observation data, such as depth of water, total magnetism, and gravity is recorded.

Data Source : Domestic organizations concerned and National Geophysical Data Center (NODC).

Sea Region: All of the earth ocean centering in seas close to Japan

Time Period: 1949 – 1997

Data Volume: 801cruise
Bathymetry……..4,127,351 point
Geomagnetism…... 4,151,033 point
Gravity……... 2,177,698 point



1.2. New Publication of JODC

1.2.1. NOPACCS and WEST-COSMIC Data Set

In March 2005, JODC issued a CD-ROM data set, 'NOPACCS and WEST-COSMIC Data Set' under cooperation with the data originators: the New Energy and Industrial Technology Development Organization (NEDO), the General Environmental Technos Co., Ltd. (KANSO TECHNOS) and the National Institute of Advanced Industrial Science and Technology (AIST).

This data set contains results from two research projects: 'Northwest Pacific Carbon Cycle Study' (NOPACCS) and 'Western pacific Environmental assessment Study on CO_2 Ocean Sequestration for Mitigation of Climate change' (WEST-COSMIC).

NOPACCS was operated from 1990 to 1996 by NEDO under financial and other support of the Ministry of International Trading and Industry (MITI), present Ministry of Economy, Trade and Industry (METI). Survey and research activities of NOPACCS were consigned to Kansai Environmental Engineering Center Co., Ltd. (KANSO) under cooperation with the researchers from National Institute for Resources and Environment (NIRE), Geological Survey of Japan (GSJ), universities and etc.

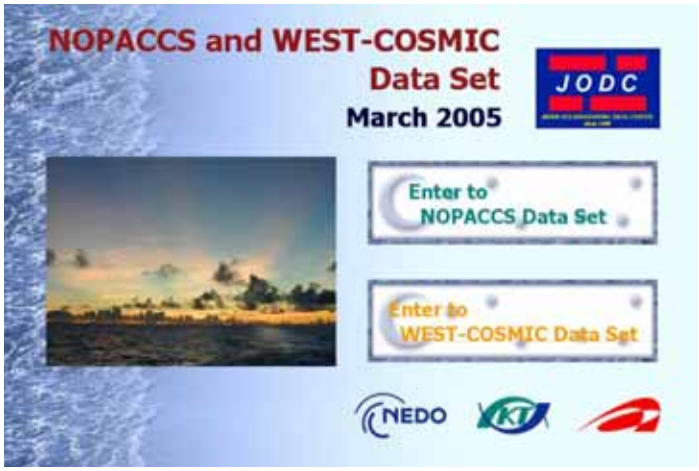
WEST-COSMIC was operated from 1997 to 2001 on the basis of results from NOPACCS, and as a part of 'the Study of Environmental Assessment on CO2 Ocean Sequestration for Mitigation of Climate change' (SEA-COSMIC). Consequently, survey and research activities of WEST-COSMIC were consigned to KANSO under cooperation with the researchers from NIRE, GSJ, universities, and etc. Then, NIRE, GSJ and other institutes were integrated into AIST in April 2001. KANSO reorganized to KANSO TECHNOS in October 2004.

This data set also includes all contents of precursory data set, 'NOPACCS Data Set Vol. 1' issued by JODC in March 1999. This is a comprehensive data set of the series of research projects concerned marine CO_2.

As items of value, this data set contains water temperatures and salinities from CTD measurements, dissolved oxygen, pH and some nutrients from chemical analysis of bottle samples, POC, PON and so on.

All observed data are organized with detailed metadata by each cruises.

JODC issued and distributed this data set to promote the effective and extensive utilization of the valuable oceanographic observation data. We have sufficient quantities in stock. If you want this CD-ROM, please contact us. We would like to send them.



NOPACCS & WEST-COSMIC data set top page

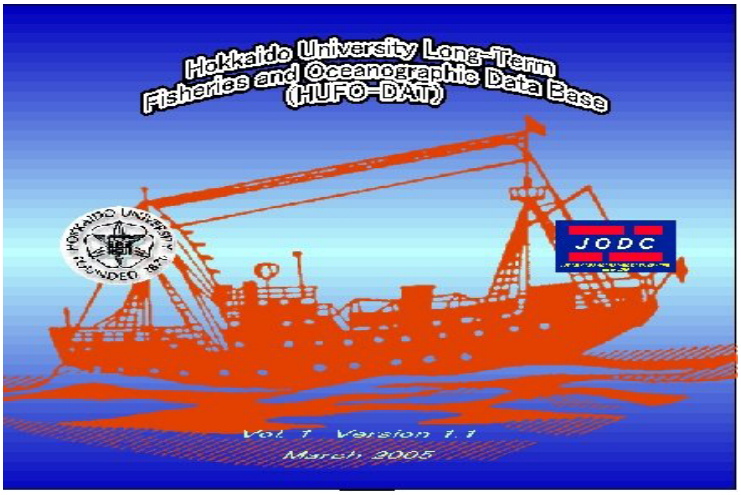
1.2.2. Hokkaido University Long-Term Fisheries and Oceanographic Data Base

Hokkaido University Faculty of Fisheries has carried out hydrographic surveys in the sea areas around Hokkaido and along the observation line of east longitude 155 degrees on many occasions using 2 training ships "Hokusei-maru" and "Oshoro-maru" and the survey covered wide areas in the North Pacific. The results of the observations are published in the annual publication "Data Record of Oceanographic Observations and Exploratory Fishing".

Hokkaido University Faculty of Fisheries and Japan Oceanographic Data Center recorded observation data up to 2001 which had been published in the "Data Record of Oceanographic Observations and Exploratory Fishing" on a CD-ROM, and published "Hokkaido University Long-Term Fisheries and Oceanographic Data Base Vol.1".

CD-ROM, Hokkaido University Long-Term Fisheries and Oceanographic Data Base Vol.1, contains observation data on various layers and plankton wet weight data collected using Nansen water sampler and CTD out of the data included in volume 1 (published in 1957) to volume 45 (published in 2002) of "Data Record of Oceanographic Observations and Exploratory Fishing". High density continuous water temperature at 1 m intervals in depth direction measured using CTD, salinity data and chlorophyll data are also included out of the data which have not been included in "Data Record of Oceanographic Observations and Exploratory Fishing" due to the circumstances in compilation.

In addition to the observation data articles on the achievements of "Hokusei-maru" and "Oshoro-maru", photos of their predecessors, movie files of "Hokusei-maru" departing from Hakodate Port on her last voyage sailing alongside with "Oshoro-maru" on October 27, 2001 are contained, and histories of the 2 training ships are clearly presented.



Hokkaido University Long-Term Fisheries and Oceanographic Data Base

1.3. The 34th session of Japanese National Group for Oceanographic Data and Information Exchange

Japanese National Group for Oceanographic Data and Information Exchange was established in 1972 on approval by Japan UNESCO National Commission Natural Science Committee Sub-committee on Marine Science to report and study with regard to the issues on IODE（International Oceanographic Data and Information Exchange） promoted by IOC, and JODC has acted as its secretariat.

This is to report on the 34th session held on February 23, 2005 at JCG Hydrographic and Oceanographic Department.

［Organizations represented］（in random order）

Japan UNESCO National Commission Secretariat, MSD Anti-submarine Information Squad, Environment Ministry Global Environment Bureau, Environment Ministry Environment Management Bureau, National Land and Transportation Ministry Ports and Harbors Bureau, Meteorological Agency Weather and Marine Meteorology Department, Fisheries Research Agency, National Institute for Environmental Studies, Institute of Oceanic Research and Development Tokai University, Japan Agency for Marine-Earth Science and Technology, Japan Fisheries Resource Conservation Association, Northwest Pacific Region Environmental Cooperation Center, Japan Hydrographic Association, JCG Hydrographic and Oceanographic Department, Japan Oceanographic Data Center（JODC）

1.3.1. JODC reported activities in 2004

It was reported that new "Water temperature and salinity statistics chart", "Coastal water meteorological data" and "Designated point water temperature data" were added to JODC standard format (FETI format）of J-DOSS (JODC Data Online Service System) provided by JODC and made available, and also reported were status of ocean data provision and receptions of the same from other bodies in fiscal 2004.

（1）On-line provision

① JODC Japan Oceanographic Data Center-Data Online Services System (J-DOSS)

＊ J-DOSS (Japan Oceanographic Data Center-Data Online Services System) for search and provision of ocean information and data on internet is in operation since October 1995
(URL：http://www.jodc.go.jp/service_j.htm)

＊Following should be noted.

- The capacity is 200,000 captured records.
- For E-mail please compress in LZH format.

＊ Data provided (currently following data are available.）

(a) Ocean data
- Various layer systems（Water temperature, salinity, chemical oceanography, etc.）data
- Current system (GEK, ADCP, etc.) data
- Tidal current (hourly sea level) data
- Plankton (classification data, observation data）
- 500m mesh depth data
- Coastal water meteorological data（newly uploaded）
- Designated point water temperature data （newly uploaded）

(b) Statistical data
- Water temperature
- Salinity
- Water temperature
- Salinity statistical chart (newly uploaded）
- Tidal current
- Wave

(c) Ocean information
- National. Oceanographic Program of Japan (NOP)
- Cruise Summary Report (CSR)
- Status of installation of sea bed installed devices
- Information on IOC publications and documents
- Acronyms of oceanographic terms

② NEAR-GOOS Regional Delayed Mode Data Base (RDMDB)

＊Operation of Regional Delayed Mode Data Base： RDMDB started in October 1996 for monitoring marine and weather data in the North East Asian Regional：NEAR) using Global Ocean Observing System：GOOS.36 items of data including BATHY/TESAC which has passed 30 days after its collection, etc. transferred from Regional Real Time Data Base ： RRTDB operated by Meteorological Agency, the ones collected by JODC for itself, wave data from ports and harbors, tidal current 30 second values, etc. received from JCG are monitored and provided.

(URL：http://near-goos1.jodc.go.jp/index_j.html)

＊ Data provided (currently following data are available.）

(a) Water temperature
- Surface water temperature
- Daily average surface water temperature
- 10 日 day average surface water temperature
- Monthly surface water temperature
- Daily sea surface water temperature (newly transferred）
- Average water temperature for various layers
- Monthly average water temperature for various layers in Pacific Ocean
- BATHY/TESAC/TRACKOB

(b) Salinity
- TESAC/TRACKOB

(c) Tidal current
- BATHY/TESAC/TRACKOB

(d) Meteorology and wind

(e) Surface dynamic height and height deviations

(f) Distribution of drift ice

(g) Wave (Ports and Harbors Bureau）

(h) 30 sec. value tide (JCG）

(２) International exchange

The marine data and information provided to us are periodically sent to International Oceanographic Data Centers (USA, Russia and China) in accordance with International Oceanographic Data and Information Exchange：IODE.

(３) Future plan and activities

① Updating and addition of J-DOSS data and information
② NEAR-GOOS Addition of Regional Delayed Mode Data Base
③ Changing GODAR data to electronic format
④ Publication of data set, etc.

1.3.2. Report from participating bodies

There were 6 reports from the bodies participated in the session including presentations on their activities with regard to marine data management and provision by the bodies.

①Results of marine environmental monitoring and survey in fiscal 2002
【Environment Ministry Global Environment Bureau】

②Japan Fisheries Oceanography Database
【Fisheries Research Agency National Research Institute of Fisheries Science】

③Environmental information and research network for Sea of Ariake
【Japan Fisheries Resource Conservation Association】

④Preparation of and routine water temperature data collection for sea state journal
【Japan Fisheries Information Service Center】

⑤Development of coastal water environmental maintenance information
【JCG Hydrographic and Oceanographic Department】

⑥Short wave radars
【JCG Hydrographic and Oceanographic Department】

2. International Projects / Meetings Participated in by JODC

2.1. The 18th Session of the IOC Committee on International Oceanographic Data and Information Exchange (IODE-XVIII)

The Eighteenth Session of IOC Committee on International Oceanographic Data and Information Exchange（IODE-XVIII）was held at the Kursaal, Ostend, Belgium between 26 and 30 April 2005. The Session was attended by 59 delegates from 31 Member States, 15 representatives of organizations, programmes and projects, and 5 observers. From Japan, Prof. Michida of Ocean Research Institute and Mr. Kanazawa of JODC participated in the session. The Session was preceded by the official inauguration on 25 April 2005 of the IOC Project Office for IODE based in Ostend. This Office has instruments and materials related with Information Technology and facilities to be used in training courses.

The IODE Committee, during its 5 day Session, reviewed the work of the past inter-sessional period. Considerable attention was given to the IODE Review that had taken place during the inter-sessional period. The Committee reviewed all recommendations by the Review Team and made several fundamental and structural change decisions in response to the Review. These included the re-composition of the IODE Officers, the abolishment of the RNODC and IODE Regional Co-ordinator systems, and further review of the IODE Groups of Experts during the next inter-sessional period. The Committee established an inter-sessional working group on ocean data quality control, thereby re-emphasizing the important role of IODE in this area. The Committee further welcomed the increased collaboration with other organizations, programmes and projects such as JCOMM, GOOS, ICES, SCAR, CDIAC, GCMD, CEP, OBIS, IAMSLIC, EURASLIC and others. The Committee noted the success of the ODINAFRICA and ODINCARSA projects, established the ODINCINDIO project and recommended the establishment of an ODIN for the WESTPAC region. The Committee further endorsed an outline and timeline for the development of the IOC Data Management Strategy. The Committee prepared 4 Resolutions and 8 Recommendations. The Committee re-elected Dr Lesley Rickards and Mr Ricardo Rojas as chair and vice-chair of IODE. Italy offered to host the next session in Rome in 2007.

As summarized in the previous paragraph, the committee decided to abolish RNODCs and instructed the ODIN projects to incorporate the resources of existing regional RNODCs. ODINs had been established in the African region（ODINAFRICA）and for the Caribbean and South American regions（ODINCARSA）, and the committee approved to establish ODINCINDIO for the Central Indian Ocean regions. Since there is no ODIN in the WESTPAC region while activities in this region is high, the Committee recommended the establishment of an ODIN for the WESTPAC region.

The discussions to establish ODIN in the WESTPAC region were taken over by the IOC/WESTPAC-VI which was held in Nha Trang, Viet Nam in May 2005. Please refer to the report of IOC/WESTPAC-VI in the next section for the progress of the discussions to establish ODINWESTPAC.

2.2. The 6th Session of the IOC Sub-Commission for the Western Pacific (IOC/WESTPAC-VI)

The Sixth Session of the IOC Sub-Commission for the Western Pacific (IOC/WESTPAC-VI) was held at Institute of Oceanography in Nha Trang, Viet Nam, 23-27 May 2005. The Session was attended by representatives from eight Member States and related international organizations.Several Japanese delegates including Mr. Kanazawa of JODC participated in the Session.

The Sub-commission reviewed the actions completed during the inter-sessional period and adopted two resolutions that create two inter-sessional working groups on the reform of programme and project structure and on the establishment of an Ocean Data and Information Network (ODIN) for WESTPAC. The Sub-commission re-elected the three officers: Dr Hyung-tack Huh (Republic of Korea) as Chairperson of the Sub-Commission, Professor Dang Ngoc Thanh (Vietnam) as First Vice-Chairperson, and Dr. Li Haiqing (China) as Second Vice-Chairperson. An information session addressed the latest national and regional developments regarding disaster mitigation, prevention, preparedness, and management and the role IOC and WESTPAC could play in setting up and operationalizing the Tsunami Early Warning System for the Indian Ocean (IOTWS). As emphasized by China, the tsunami event of 26 December 2004 now poses both a challenge and an opportunity for

IOC to solidify its role and promote operational oceanography in the region. In facing this challenge, it should support its regional secretariat and take advantage of its strategic presence as well of the cooperation of Member States.

Following the recommendation of IODE-XVIII of the establishment of an ODIN in the WESTPAC region as described in the section 2.1, IOC/WESTPAC-VI discussed this matter and the Sub-Commission adopted a Resolution to establish an inter-sessional working group（IWG）to establish an ODIN in WESTPAC region. The Sub-Commission further recommended, although acknowledging the decision of the IODE Programme to abolish the RNODC and IODE Regional Coordinators systems, maintaining the RNODC-WESTPAC as an interim measure, at least until the establishment of an ODIN-WESTPAC.

According to the Resolution, the members of the IWG were appointed by interested Member States and related international organizations in the summer of 2005. The IWG is chaired by Japanese representative as indicated by the Resolution. The discussion among the IWG is progressing and a project of ODINWESTPAC will be proposed to all WESTPAC Member States in due course.

2.3. The 4th NOWPAP DINRAC Focal Points Meeting

North-west Pacific Action Plan (NOWPAP) is a project implemented by Japan, Korea, China and Russia since 1994 for maintenance of marine environment in Sea of Japan and Yellow Sea as a part of United Nations Environmental Program (UNEP）Regional Sea Programme

For NOWPAP there are 4 Regional Activity Centers (RAC) to address contingency plan in case of marine pollution, special monitoring, coastal environment assessment, pollution monitoring and data and information network under UNEP Regional Coordination Unit (RCU) and FP meetings are organized for each RAC to determine policies for RAC activities attended by the Focal Points (FP) appointed by the countries.

The 4th NOWPAP/ DINRAC FP meeting was held from September 27 to 28, 2005 in Dalian, China to determine the activity policy of NOWPAP Regional Activity Center addressing data and information network (DINRAC), and here is the report.

In the FP meeting of this time there were about 20 participants including FP and experts from each country and representative and secretariat of each RAC （DINRAC）. From Japan there were 3 participants, Hydrographic and Oceanographic Department International Service Section Oceanographic Information International Affairs Officer, Mr. Takami Fujitomo, as the FP, Mr. Okano of JODC as an expert and Masanobu Miyazaki, Director of Regional Activity Center for special monitoring and coastal environment assessment （CEARAC）.The main agenda for the meeting were as follows.

RCU (Toyama Office) Director Mr. Tkalin discussed NOWPAP activities following the 9th IGM including the decisions in the 9th Intern-government Meeting（IGM） and other RAC situations.

DINRAC Director Mr. Wang reported DINRAC activities and budget for 2004-2005 period, DINRAC proposed about the budget for the end of current period, and it was agreed that part of it is allocated to on-going establishment of metadata, and the balance shall be returned to UNEP as it is difficult to execute within the period.

Ms. An of DINRAC reported about the questionnaire responses which were reported from the countries with regard to the activities for GIS type developed products in and around NOWPAP and the analysis results. It will be made available on the website by the end of October 2005.

An expert Dr. Kang from Korea, the country leading the establishment of DINRAC metadata base (Activity I）reported about the progress.

Each member country presented country report on data and information management system activity status and GIS developed products (Activity J） in 2004-2005 period, and Mr. Ito, International Affairs Officer presented for Japan and RCU Director Tkalin highly commended the report.

The parties made proposals and discussed the projects and budget continuing in 2005, the last half of 2004-2005 period and the project plans and budget for 2006-2007 period. During the discussion DINRAC Ms. Liu proposed that development of regional report and country report on data and information about diversity of coastal marine lives in NOWPAP region (Activity K), which had been approved for implementation in September 2005, should be carried out in the next period and it was decided to include in the budget for the next period. In the meeting DINRAC projects and

budget for the 2006-2007 period were determined and they will be proposed to the 10th Inter-government Meeting (IGM) and the 5th FP meeting will review operational budget and implementation procedures based on the results of the 10th IGM. It was decided that the DINRAC expert meeting for 2006-2007 period shall be cancelled.

Lastly it was agreed that the 5th FP meeting should be held in China in March 2006 （as of this writing it had been proposed to delay until May 2006）

2.4. The 33rd UJNR / SBSP Meeting

The US-Japan Conference for Development & Utilization of Natural Resources (UJNR) was established in 1964 to promote conservation of marine and terrestrial resources through cooperation in applied science and technology. The Sea-Bottom Surveys Panel (SBSP) was established under the UJNR in 1972 as a forum to promote the exchange of marine geophysical and bathymetric research and survey data, and related activities of marine science. The panel is administered by National Ocean Service of National Oceanic & Atmospheric Administration (NOAA) and Japan Hydrographic and Oceanographic Department (JHOD).

On 18-19 October 2005 the 33rd meeting of the UJNR/SBSP was held at the Western Regional Center of NOAA in Seattle, Washington, USA. Twenty-eight experts on the related fields attended the meeting. The organizations of the attendants were various, which were National Geophysical Data Center (NGDC), Office of Coast Survey of NOAA, NOAA/UNH Joint Hydrographic Center, Naval Oceanographic Office and US Army Corps of Engineers in USA, and National Institute of Advanced Industrial Science and Technology, University of Tokyo, Japan Hydrographic Association and JHOD in Japan.

The meeting was opened by the US Panel Chairman Captain Roger L. Parson, Director of Coast Survey Office, NOAA, followed by opening remarks by the Japan Panel Chairman Mr. Shigeru Kasuga, Director of Hydrographic Surveys Division, JHOD. Seven activity reports and eighteen technical reports were presented and fruitful discussions were made during the two-day meeting. The topics of the meeting covered a wide range, including tsunami forecast, continental shelf surveys, multi-beam surveying, airborne laser system, application of the Global Positioning System, and so on.

Concerning data and information exchange, Dr. Christopher G. Fox made a presentation of the recent activities of NGDC, which included NOAA Climate Data Modernization Program Digitizing Project online distribution of seismic reflection and multi-beam bathymetric data, and providing bathymetric model for tsunami hazard system. Mr. Shigeru Kasuga also introduced the recent activity of JODC. The USA and Japan enhance the cooperative relationship of executing data and information exchange through the UJNR/SBSP.

It was agreed that the next UJNR/SBSP meeting would be held in Japan in the autumn of 2006 hosted by JOHD.

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 2004 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 2005

AGENCY	SHIP	AREA	PERIOD	DATA TYPE
ERI,UT	HAKUHO MARU	North Pacific Ocean	2004/11/03〜2004/11/15	G
HOD,JCG	TAKUYO	North Pacific Ocean	2004/10/26〜2004/11/12	G
HOD,JCG	TAKUYO	North Pacific Ocean	2004/11/27〜2004/12/19	G
HOD,JCG	SHOYO	Philippine Sea	2004/10/08〜2004/10/27	
ORI,UT	TANSEI MARU	North Pacific Ocean	2004/06/04〜2004/06/14	B,H
HOD,JCG	SHOYO	North Pacific Ocean	2004/11/24〜2004/12/25	
HOD,JCG	KAIYO	North Pacific Ocean	2005/01/27〜2005/02/04	
NFRDI	TAMGU 3	East China Sea	2004/10/05〜2004/10/30	B,D,H,M
NFRDI	TAMGU 5	Japan Sea	2004/10/05〜2004/10/30	B,D,H,M
NFRDI	TAMGU 8	Yellow Sea	2004/10/13〜2004/10/23	B,D,H,M
NFRDI	TAMGU 1	East China Sea	2004/11/10〜2004/11/15	B,H,M
YNCMT	YUGE MARU	Inland Sea	2004/08/02〜2004/08/05	
YNCMT	YUGE MARU	Inland Sea	2004/08/23〜2004/08/26	
HOD,JCG	SHOYO	North Pacific Ocean	2005/01/21〜2005/02/09	
HOD,JCG	MEIYO	North Pacific Ocean	2005/02/26〜2005/03/04	
YNCMT	HAMAKAZE	Inland Sea	2004/07/29〜2004/07/29	
YNCMT	HAMAKAZE	Inland Sea	2004/08/09〜2004/08/12	
GSJ,AIST	HAKUREI MARU No.2	North Pacific Ocean	2004/07/12〜2004/08/10	G
HOD,JCG	SHOYO	North Pacific Ocean	2005/02/16〜2005/03/14	
ORI,UT	TANSEI MARU	North Pacific Ocean, Philippine Sea	2004/11/24〜2004/12/07	G
HOD,JCG	KAIYO	North Pacific Ocean	2005/02/28〜2005/03/17	D,H
FF,NU	NAGASAKI MARU	East China Sea	2005/04/06〜2005/04/16	B,D,H
FF,NU	NAGASAKI MARU	East China Sea	2005/04/18〜2005/04/26	B,H
ORI,UT	TANSEI MARU	Philippine Sea	2004/07/16〜2004/07/26	G
ORI,UT	TANSEI MARU	-	2004/05/17〜2005/05/23	H
JAMSTEC	TANSEI MARU	North Pacific Ocean	2004/11/08〜2004/11/12	
ORI,UT	HAKUHO MARU	North Pacific Ocean	2004/05/13〜2004/07/06	B,G,H
ORI,UT	HAKUHO MARU	North Pacific Ocean	2004/07/13〜2004/08/25	B,D,H,M,P
ORI,UT	TANSEI MARU	East China Sea	2004/10/08〜2004/10/15	H,B,H
ORI,UT	TANSEI MARU	Phillippine Sea	2004/11/14〜2004/11/21	D,G
ORI,UT	TANSEI MARU	North Pacific Ocean	2004/04/29〜2004/05/05	B,G
PL,HU	TANSEI MARU	North Pacific Ocean	2005/05/29〜2005/06/07	
FF,NU	NAGASAKI MARU	East China Sea	2005/05/18〜2005/06/02	G,H

AGENCY	SHIP	AREA	PERIOD	DATA TYPE
ISV,FS,KU	NAGASAKI MARU	Philippine Sea	2005/05/09〜2005/05/13	G
HOD,JCG	SHOYO	Philippine Sea	2004/08/23〜2004/09/15	
HOD,JCG	TAKUYO	North Pacific Ocean	2005/02/21〜2005/03/14	
HOD,JCG	SHOYO	North Pacific Ocean	2005/04/18〜2005/05/10	
HOD,JCG	MEIYO	North Pacific Ocean	2005/05/16〜2005/05/26	
ORI,UT	TANSEI MARU	Philippine Sea	2005/02/25〜2005/03/03	G
ORI,UT	TANSEI MARU	Philippine Sea	2004/06/24〜2004/07/03	G
NFRDI	TAMGU 3	East China Sea	2004/12/02〜2004/12/08	B,D,H,M
NFRDI	TAMGU 5	Japan Sea	2004/12/08〜2004/12/14	B,D,H,M
NFRDI	TAMGU 8	Yellow Sea	2004/12/09〜2004/12/18	B,D,H,M
NFRDI	TAMGU 1	-	2004/04/09〜2004/04/26	B,H
NFRDI	TAMGU 1	-	2004/10/14〜2004/11/01	B,H
ORI,UT	TANSEI MARU	North Pacific Ocean	2005/06/10〜2005/06/21	G,H
ORI,UT	TANSEI MARU	North Pacific Ocean	2005/06/24〜2005/06/28	H
HOD,JCG	TAKUYO	North Pacific Ocean	2005/05/30〜2005/06/20	
NFRDI	TAMGU 7	-	2004/02/03〜2004/02/08	G,H,P
NFRDI	TAMGU 7	-	2004/05/17〜2004/05/21	G,H,P
NFRDI	TAMGU 7	-	2004/08/02〜2004/08/07	G,H,P
NFRDI	TAMGU 7	-	2004/11/06〜2004/11/13	G,H,P
NFRDI	TAMGU 6	Japan Sea	2004/02/14〜2004/02/21	G,H,P
NFRDI	TAMGU 6	Japan Sea	2004/05/06〜2004/05/15	H,P
NFRDI	TAMGU 6	Japan Sea	2004/08/08〜2004/08/13	H,P
NFRDI	TAMGU 6	Japan Sea	2004/11/09〜2004/11/16	H,P
NFRDI	TAMGU 6	Japan Sea	2004/02/14〜2004/02/19	G,H,P
NFRDI	TAMGU 6	Japan Sea	2004/05/06〜2004/05/08	H,P
NFRDI	TAMGU 6	Japan Sea	2004/08/09〜2004/08/11	H,P
NFRDI	TAMGU 6	Japan Sea	2004/11/13〜2004/11/16	H,P
NFRDI	TAMGU 11	-	2004/02/03〜2004/02/07	G,H,P
NFRDI	TAMGU 11	-	2004/05/06〜2004/05/10	H,P
NFRDI	TAMGU 11	-	2004/08/02〜2004/08/06	H,P
NFRDI	TAMGU 11	-	2003/11/09〜2004/11/13	H,P
NFRDI	TAMGU 10	-	2004/02/04〜2004/02/06	G,H,P
NFRDI	TAMGU 10	-	2004/05/11〜2004/05/13	H,P
NFRDI	TAMGU 10	-	2004/08/03〜2004/08/05	H,P
NFRDI	TAMGU 10	-	2004/11/10〜2004/11/12	H,P
NFRDI	TAMGU 16	-	2004/02/18〜2004/02/19	G,H,P
NFRDI	TAMGU 16	-	2004/05/12〜2004/05/13	H,P
NFRDI	TAMGU 16	-	2004/08/10〜2004/08/12	H,P
NFRDI	TAMGU 16	-	2004/11/16〜2004/11/18	H,P
NFRDI	TAMGU 9	-	2004/02/04〜2004/02/10	G,H,P
NFRDI	TAMGU 9	-	2004/05/06〜2004/05/09	H,P
NFRDI	TAMGU 9	-	2004/08/05〜2004/08/08	H,P
RIAM,KU	NAGASAKI MARU	East China Sea	2005/07/02〜2005/07/10	B,D,H
NFRDI	TAMGU 9	-	2004/11/09〜2004/11/12	H,P
NFRDI	TAMGU 2	-	2003/02/10〜2003/02/19	G,H,P
NFRDI	TAMGU 2	-	2004/05/06〜2004/05/12	H,P
NFRDI	TAMGU 2	-	2004/08/09〜2004/08/15	H,P
NFRDI	TAMGU 2	-	2004/11/08〜2004/11/16	H,P

AGENCY	SHIP	AREA	PERIOD	DATA TYPE
NFRDI	TAMGU 15	-	2004/02/09〜2004/02/11	G,H,P
NFRDI	TAMGU 15	-	2004/05/11〜2004/05/13	H,P
NFRDI	TAMGU 15	-	2004/08/03〜2004/08/05	H,P
NFRDI	TAMGU 15	-	2004/11/15〜2004/11/17	H,P
NFRDI	TAMGU 17	-	2004/02/16〜2004/02/18	B,H
NFRDI	TAMGU 17	-	2004/03/15〜2004/03/17	B,H
NFRDI	TAMGU 17	-	2004/04/19〜2004/04/21	B,H
NFRDI	TAMGU 17	-	2004/05/17〜2004/05/19	B,H
NFRDI	TAMGU 17	-	2004/06/14〜2004/06/16	B,H
NFRDI	TAMGU 17	-	2004/07/19〜2004/07/21	B,H
NFRDI	TAMGU 17	-	2004/08/06〜2004/08/08	B,H
NFRDI	TAMGU 17	-	2004/09/19〜2004/09/21	B,H
NFRDI	TAMGU 17	-	2004/10/18〜2004/10/20	B,H
NFRDI	TAMGU 17	-	2004/11/15〜2004/11/17	B,H
NORI	HAE YANG 2000	Japan Sea	2004/02/08〜2004/03/03	D,H,M
NORI	HAE YANG 2000	Japan Sea	2004/04/01〜2004/05/05	D,H,M
NORI	HAE YANG 2000	Japan Sea	2004/08/07〜2004/08/24	D,H,M
NORI	HAE YANG 2000	Japan Sea	2004/11/30〜2004/12/24	D,H,M
NORI	BADARO 2	Japan Sea	2004/06/03〜2004/06/30	D,H,M
NORI	BADARO 2	Japan Sea	2004/08/08〜2004/08/24	D,H,M
NORI	BADARO 2	Japan Sea	2004/10/01〜2004/11/05	D,H,M
NORI	BADARO 3	East China Sea	2004/04/01〜2004/09/30	D
NORI	NAMHAERO	East China Sea	2004/05/01〜2004/09/20	G
NORI	BADARO 1	-	2004/04/01〜2004/09/15	G
KCG	TAMGU 8	Yellow Sea	2004/02/12〜2004/02/16	B,H,P
KCG	TAMGU 5	Japan Sea	2004/02/18〜2004/02/19	B,H,P
KCG	PREVENTION SHIP 19	Yellow Sea	2004/05/26〜2004/05/29	B,H,P
KCG	PREVENTION SHIP 16	Japan Sea	2004/05/20〜2004/05/25	B,H,P
KCG	TAMGU 8	Yellow Sea	2004/08/05〜2004/08/10	B,G,H,P
KCG	TAMGU 5	Japan Sea	2004/08/16〜2004/08/22	B,H,P
KCG	PREVENTION SHIP 19	Yellow Sea	2004/11/25〜2004/11/28	B,H,P
KCG	PREVENTION SHIP 16	Japan Sea	2004/11/09〜2004/11/12	B,H,P
HyARC, NagoyaU	TANSEI MARU	North Pacific Ocean	2004/04/22〜2004/04/26	B,H
HyARC, NagoyaU	TANSEI MARU	North Pacific Ocean	2004/06/17〜2004/06/21	B
HyARC, NagoyaU	TANSEI MARU	North Pacific Ocean	2004/07/29〜2004/08/03	B
ORI,UT	TANSEI MARU	North Pacific Ocean	2005/07/23〜2005/07/25	B
HOD,JCG	SHOYO	North Pacific Ocean	2005/07/11〜2005/07/25	
KIGAM	TAMHAE 2	Japan Sea	2004/06/25〜2004/07/10	G
KIGAM	TAMHAE 2	Yellow Sea	2004/03/11〜2004/07/20	G
KORDI	-	Yellow Sea	2004/01/04〜2004/10/10	B,D,G,P
KORDI	OLYMPIC 5	Yellow Sea	2004/02/19〜2004/02/20	P
KORDI	EARDO	-	2004/04/21〜2004/04/22	B,H
KORDI	ONNURI	Japan Sea	2004/05/18〜2004/05/25	G
KORDI	OLYMPIC 5	Yellow Sea	2004/05/19〜2004/05/20	P
KORDI	EARDO	Yellow Sea	2004/05/09〜2004/05/12	D,H
KORDI	-	-	2003/06/01〜2003/10/31	D,H
KORDI	-	-	2004/06/05〜2004/06/07	G

AGENCY	SHIP	AREA	PERIOD	DATA TYPE
KORDI	-	-	2004/06/07〜2004/06/07	B,H
KORDI	ONNURI	Japan Sea	2004/06/12〜2004/06/14	G,H
KORDI	-	-	2004/07/14〜2004/09/04	B,H
KORDI	-	-	2004/07/16〜2004/07/16	B,H
KORDI	-	-	2004/07/20〜2004/07/20	B,H
KORDI	-	Yellow Sea	2004/08/07〜2004/08/08	B
KORDI	-	-	2003/08/13〜2004/11/24	D
KORDI	OLYMPIC 5	Yellow Sea	2004/08/16〜2004/08/17	P
KORDI	-	Japan Sea	2004/08/23〜2004/09/03	G,H,P
KORDI	-	-	2004/09/01〜2004/09/01	B,H
KORDI	EARDO	Yellow Sea	2004/09/08〜2004/09/15	G,H,P
KORDI	-	Yellow Sea	2004/09/10〜2004/09/10	B
KORDI	-	Yellow Sea	2004/09/13〜2004/09/13	B
KORDI	-	Yellow Sea	2004/09/18〜2004/09/18	B
KORDI	-	-	2004/09/20〜2004/09/20	B,H
KORDI	EARDO	Yellow Sea	2004/09/20〜2004/09/25	D,H
KORDI	-	Yellow Sea	2004/09/25〜2004/09/25	B
KORDI	EARDO	-	2004/10/01〜2004/10/08	B,H
KORDI	-	Yellow Sea	2004/10/11〜2004/10/11	B
KORDI	-	-	2004/10/12〜2004/10/12	B,H
KORDI	-	Yellow Sea	2004/10/12〜2004/10/22	G
KORDI	ONNURI	Japan Sea	2004/10/21〜2004/10/25	G,H
HMO,JMA	KOFU MARU	North Pacific Ocean	2005/01/20〜2005/02/28	B,D,G,H,M,P
KORDI	-	Japan Sea	2004/10/21〜2004/10/29	G
KORDI	-	-	2004/11/09〜2004/11/09	B,H
KORDI	-	Yellow Sea	2004/11/17〜2004/11/18	B
KORDI	-	North Pacific Ocean	2004/11/21〜2004/12/03	B
KORDI	-	-	2004/11/23〜2004/11/23	B,H
KORDI	-	-	2004/11/23〜2004/11/23	B,H
KORDI	-	Yellow Sea	2003/11/27〜2004/01/07	D
KORDI	-	-	2004/12/13〜2004/12/13	B,H
KORDI	-	Yellow Sea	2004/12/22〜2004/12/22	B
KORDI	-	-	2004/12/22〜2004/12/30	G
KORDI	-	Yellow Sea	2005/01/10〜2005/01/10	B,H
KORDI	-	Yellow Sea	2004/04/28〜2004/05/17	D,G,H
KORDI	-	-	2005/01/24〜2005/01/24	B,H
KORDI	-	-	2005/01/24〜2005/01/24	B,H
KORDI	-	Yellow Sea	2005/01/25〜2005/01/25	B
KORDI	-	Yellow Sea	2005/02/21〜2005/02/22	B
KORDI	ONNURI	Japan Sea	2005/02/23〜2005/02/27	D,H
NFRDI	TAMGU 3	-	2005/02/14〜2005/03/02	B,D,H,M
NFRDI	TAMGU 5	Japan Sea	2005/02/21〜2005/03/17	B,D,H,M
NFRDI	TAMGU 8	Yellow Sea	2005/02/15〜2005/03/01	B,D,H,M
NFRDI	TAMGU 1	East China Sea	2005/02/14〜2005/02/22	B,H,M
NFRDI	TAMGU 3	-	2005/03/31〜2005/04/05	B,D,H,M
NFRDI	TAMGU 5	Japan Sea	2005/04/11〜2005/04/25	B,D,H,M
NFRDI	TAMGU 8	Yellow Sea	2005/04/12〜2005/04/19	B,D,H,M
NFRDI	TAMGU 1	East China Sea	2005/03/03〜2005/03/05	B,H,M

AGENCY	SHIP	AREA	PERIOD	DATA TYPE
NFRDI	TAMGU 3	-	2005/06/08〜2005/06/14	B,D,H,M
NFRDI	TAMGU 5	Japan Sea	2005/06/22〜2005/06/26	B,D,H,M
NFRDI	TAMGU 8	Yellow Sea	2005/06/09〜2005/06/17	B,D,H,M
KMO,JMA	KEIFU MARU	North Pacific Ocean	2005/01/20〜2002/03/10	B,D,G,H,M,P
MMO,JMA	SEIFU MARU	Japan Sea	2005/01/27〜2005/03/01	B,D,G,H,M,P
HMO,JMA	KOFU MARU	North Pacific Ocean	2005/04/26〜2005/06/01	B,D,G,H,M,P
KMO,JMA	KEIFU MARU	Philippine Sea	2004/11/30〜2004/12/06	D,G,H,M
HMO,JMA	KOFU MARU	North Pacific Ocean	2004/06/14〜2004/08/10	B,D,G,H,M,P
HMO,JMA	KOFU MARU	North Pacific Ocean	2004/10/19〜2004/11/29	B,D,G,H,M,P
MMO,JMA	SEIFU MARU	Japan Sea, North Pacific Ocean	2004/10/08〜2004/11/20	B,D,G,H,M,P
KMO,JMA	KEIFU MARU	North Pacific Ocean, Philippine Sea	2005/04/19〜2005/05/20	B,D,G,H,M,P
MMO,JMA	SEIFU MARU	Japan Sea	2005/04/22〜2004/04/19	B,D,G,H,M,P
HMO,JMA	KOFU MARU	North Pacific Ocean	2005/06/23〜2005/07/11	B,D,G,H,M,P
KMO,JMA	KEIFU MARU	North Pacific Ocean, Philippine Sea	2005/06/15〜2005/08/12	B,D,G,H,M,P
HOD,JCG	SHOYO	North Pacific Ocean	2005/08/17〜2005/09/22	
ISV,FS,KU	NAGASAKI MARU	Philippine Sea	2005/07/14〜2005/07/21	G
RIAM,KU	NAGASAKI MARU	Japan Sea	2005/08/04〜2005/08/26	H
FF,NU	NAGASAKI MARU	East China Sea	2005/09/16〜2005/10/01	B,H
MMO,JMA	SEIFU MARU	Japan Sea, East China Sea, Sea of Okhotsk	2005/06/13〜2005/08/09	B,D,G,H,M,P
NFRDI	TAMGU 3	-	2005/08/02〜2005/08/17	B,D,H,M
NFRDI	TAMGU 5	Japan Sea	2005/08/09〜2005/08/21	B,D,H,M
NFRDI	TAMGU 8	Yellow Sea	2005/08/04〜2005/08/17	B,D,H,M
NFRDI	TAMGU 1	East China Sea	2005/08/08〜2005/08/15	B,H,M
HOD,JCG	TAKUYO	Philippine Sea, North Pacific Ocean	2005/10/12〜2005/11/02	
FF,NU	NAGASAKI MARU	North Pacific Ocean	2005/10/07〜2005/10/09	H
RIAM,KU	NAGASAKI MARU	North Pacific Ocean, East China Sea	2005/10/13〜2005/10/21	D,H
FF,NU	NAGASAKI MARU	East China Sea	2005/11/08〜2005/11/12	B,H
HMO,JMA	KOFU MARU	North Pacific Ocean	2005/10/20〜2005/11/30	B,D,G,H,M,P
ORI,UT	TANSEI MARU	North Pacific Ocean	2005/11/30〜2005/12/10	B
HOD,JCG	SHOYO	Philippine Sea	2005/10/20〜2005/11/25	
HOD,JCG	TAKUYO	Philippine Sea, North Pacific Ocean	2005/09/08〜2005/09/29	

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

ERI,UT: Earthquake Research Institute, University of Tokyo
FF,NU: Faculty of Fisheries, Nagasaki University
GSJ,AIST: Geological Survey of Japan, National Institute of Advanced Industrial :Science and Technology
HMO,JMA : Hakodate Marine Observatory, Japan Meteorological Agency
HOD,JCG: Hydrographic and Oceanographic Department, Japan Coast Guard
HyARC,NagoyaU: Hydrospheric Atmospheric Research Center, Nagoya University
ISV,FS,KU: Institute of Seismology and Volcanology, Faculty of Sciences, Kyushu University
JAMSTEC: Japanese Agency for Marine Earth Science and Technology

KMO,JMA: Kobe Marine Observatory, Japan Meteorological Agency
MMO,JMA: Maizuru Marine Observatory, Japan Meteorological Agency
ORI,UT: Ocean Research Institute, University of Tokyo
PL,HU Plankton Laboratory, Hokkaido University
RIAM,KU: Research Institute for Applied Mechanics, Kyushu University
YNCMT: Yuge National College of Maritime Technology

Korea

KCG Korea Coast Guard
KIGAM: Korea Institute of Geoscience and Mineral Resources
KORDI: Korea Ocean Research & Development Institute
NFRDI: National Fisheries Research and Development Institute
NORI: National Oceanographic Research Institute
REI,NFRDI: Resources Enhancement Institute, NFRDI

Table 2 Number of Archived Data in WESTPAC Region

YEAR	SD	STD	CTD	XCTD	XBT	DBT	AXBT	BT	GEK	DRIFT	ADCP	Unknown
1979	7,225	47	2,706	0	8,090	672	0	17,226	5,247	118	0	12,370
1980	8,165	643	2,299	0	11,625	2,293	0	17,083	6,215	186	0	12,666
1981	6,857	120	3,081	0	9,111	2,345	1,231	16,825	5,982	215	0	12,825
1982	7,836	214	2,967	0	11,040	2,870	509	15,076	6,035	52	0	12,761
1983	7,967	368	3,965	0	11,426	3,068	824	13,290	6,016	109	0	12,386
1984	6,021	3	4,670	0	11,610	3,855	860	15,786	7,039	68	0	12,776
1985	5,446	463	5,773	0	14,941	3,510	1,073	15,206	5,426	85	3,386	12,346
1986	8,536	269	5,770	0	16,994	2,365	1,517	11,739	5,793	29	2,994	9,822
1987	10,048	231	7,087	0	17,799	1,700	1,272	12,907	4,971	4	4,483	6,664
1988	10,210	29	9,853	0	19,658	1,045	1,197	9,990	2,811	248	13,359	5,736
1989	8,849	62	10,528	0	18,666	475	1,323	7,796	1,626	314	59,587	4,744
1990	8,751	360	11,852	0	24,278	1,314	1,291	6,286	871	311	73,460	4,554
1991	6,408	0	15,016	0	23,190	1,405	1,509	1,825	841	348	50,362	3,564
1992	4,487	105	15,824	0	25,576	18	1,199	1,146	216	227	91,934	3,516
1993	3,684	119	14,296	0	38,099	1,313	1,160	1,420	152	20	92,541	3,148
1994	1,601	128	2,050	0	29,281	108	0	7,763	320	0	24,123	0
1995	1,381	0	1,867	0	42,318	115	1,002	659	97	0	287,575	0
1996	1,323	0	2,168	0	32,782	208	939	344	61	0	793,067	0
1997	1,259	0	2,022	0	10,022	242	918	91	73	0	611,239	0
1998	1,166	0	1,755	7	11,274	178	934	101	146	0	538,944	0
1999	962	0	1,941	40	10,132	208	1,017	56	0	0	500,128	0
2000	958	0	1,865	48	11,237	155	875	72	313	0	240,617	0
2001	935	0	1,897	77	11,954	146	1,898	7	316	0	143,631	0
2002	0	0	2,427	178	9,338	65	1,133	33	443	0	77,979	0
2003	0	0	53	79	8,172	0	1,016	0	884	0	347,347	0
2004	0	0	0	127	855	0	0	0	0	0	232,039	0
2005	0	0	0	0	25	0	0	0	0	0	0	0
Total	**120,075**	**3,161**	**133,732**	**556**	**439,493**	**29,673**	**24,697**	**172,727**	**61,894**	**2,334**	**4,188,795**	**129,878**

Data Items

SD: Serial station Data
STD: Salinity, Temperature, Depth profiler
CTD: Conductivity, Temperature, Depth profiler
XCTD: eXpendable Conductivity, Temperature, Depth profiler
XBT: eXpendable Bathy Thermograph
DBT: Digital memorial Bathy Thermograph
AXBT: Airborne eXpendable Bathy Thermograph
BT: Bathy Thermograph
GEK: Geomagnetic Electro Kinetograph
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 37 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 -	12.2
BATHY_G	Global Datasets of BATHY Report	Apr,2000 -	45.1
BUOY	Regional Datasets of BUOY Report	Jun,1996 -	225.8
BUOY_G	Global Datasets of BUOY Report	Apr,2000 -	3,166.5
SHIP	Regional Datasets of SHIP Report	Jun,1996 -	162.2
SHIP_G	Global Datasets of SHIP Report	Apr,2000 -	1,789.1
TESAC	Regional Datasets of TESAC Report	Sep,1998 -	27.8
TESAC_G	Global Datasets of TESAC Report	Jan,1996 -	287.2
TRACKOB	Regional Datasets of TRACKOB Report	Jun,1996 -	1.0
TRACKOB_G	Global Datasets of TRACKOB Report	Apr,2000 -	31.3
SUBST	Subsurface Temperature Decode Result	Jun,1997 -	556.5
SUBST_ERROR	Subsurface Temperature Decode Error Report	Jun,1997 -	5.2
TS	Temperature and Salinity Decode Result	Jul,2001 -	503.7
GLBTS	Global Temperature and Salinity Decode Result	Aug,2001 -	6,769.2
WIND	Wind Data Decode Result	Jan,1998 -	124.7
WIND_ERROR	Wind Data Decode Error Report	Jan,1998 -	1.3
WIND2	Wind Data (Format Ver.2.0)	Jul,2001 -	91.9
GLBWIND	Global Wind Data Decode Result	Aug,2001 -	1,372.4
SSTANL	Gridded Daily Sea Surface Temperature Data in the Northwest Pacific	Jun,1996 - May,2000	98.7
DAILYSST(JMA)	Daily Sea Surface Temperature Data Analysis	Apr,2000 -	203.8
WNPSST(JMA)	10-day Mean Sea Surface Temperature in the Northwest Pacific	Apr,2000 -	5.1
GLBSST(JMA)	Global Monthly Mean Sea Surface Temperature	Apr,2000 -	5.1
ADJSUBS(JMA)	Monthly Mean Subsurface Temperature in Seas Around Japan (100m,200m,400m)	Mar,2000 -	16..9
PACSUBS(JMA)	Monthly Mean Subsurface Temperature in Pacific (100m,200m,400m)	Mar,2000 -	28.1
ASMDAY(JMA)	Daily subsurface temperature around Japan (100m, 200m, 400m)	Nov,2005 -	5.8
SSDH(JMA)	Analyzed Sea Surface Dynamic Height in the Pacific	Jan,2003 -	129.1
SSHA(JMA)	Analyzed Sea Surface Height Anomalies in the Pacific	Jan,2003 -	129.1
SEA_ICE	Sea Ice Concentration in the Northeast Asia marginal Seas	Dec,2003 -	407.6
MGDSST	Merged satellite and in-situ data Global Daily Sea Surface Temperature	Apr,2004 -	1.748.2
GTSPP	GTSPP Quality Controlled Subsurface Temperature and Salinity Data Provided by MEDS	Jan,2003 -	161.2
FERHRI ship	Marine Meteorological Onboard Observation Data by FERHRI, Russia	Sep,1997 -	4.0
FERHRI station	Marine Meteorological Observation Data at the Station by FERHRI, Russia	Apr,2002 -	0.3
JAFIC	Sea Surface / Subsurface Temperature Data from Japan Fisheries Information Service Center	Jul,1998 -	45.8
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,2004	35.9
30s_TIDEST	30-sec. Interval Sea Tide Data at Tidal Stations of Japan Coast Guard	Jan,1999 -	6,490.1
Total			**24,687.8**

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 IV.

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 2005. Data Holding Status is shown in table 4 and Station Plots are shown in Fig. 1-1 and Fig. 1-2.

Table 4 Data Holding Status of IGOSS BATHY/TESAC

YEAR	BATHY	TESAC
1982	22,667	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	32,345	5,074
1989	27,933	4,996
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	22,069	8,240
2001	26,998	21,126
2002	26,446	24,204
2003	29,192	55,212
2004	33,969	156,136
2005	29,126	218,606

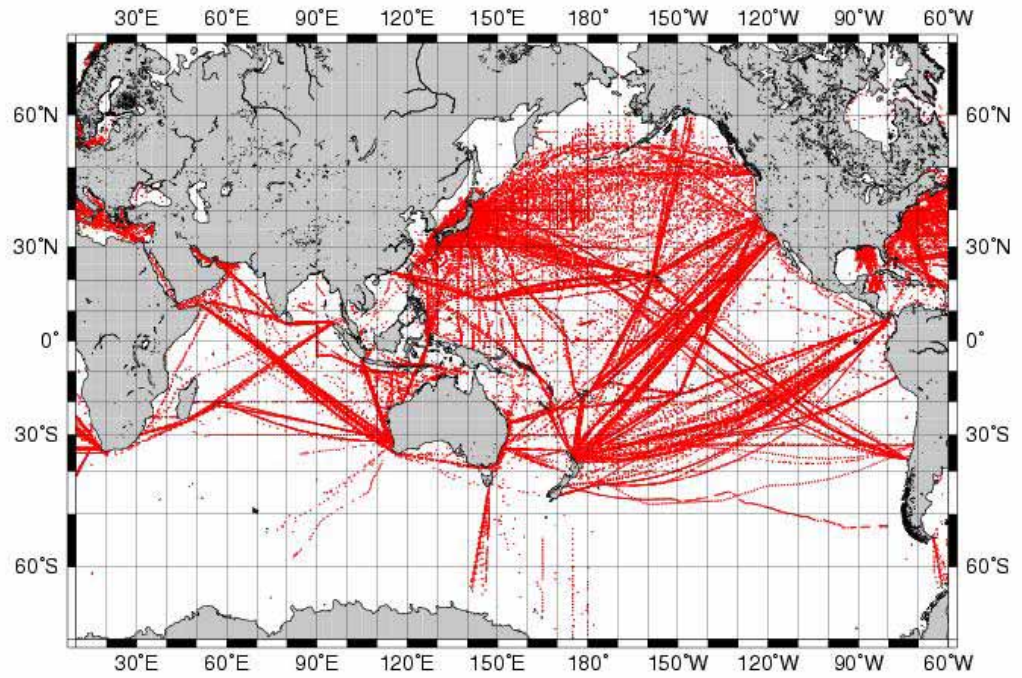


Fig. 1-1 Station Plots for BATHY

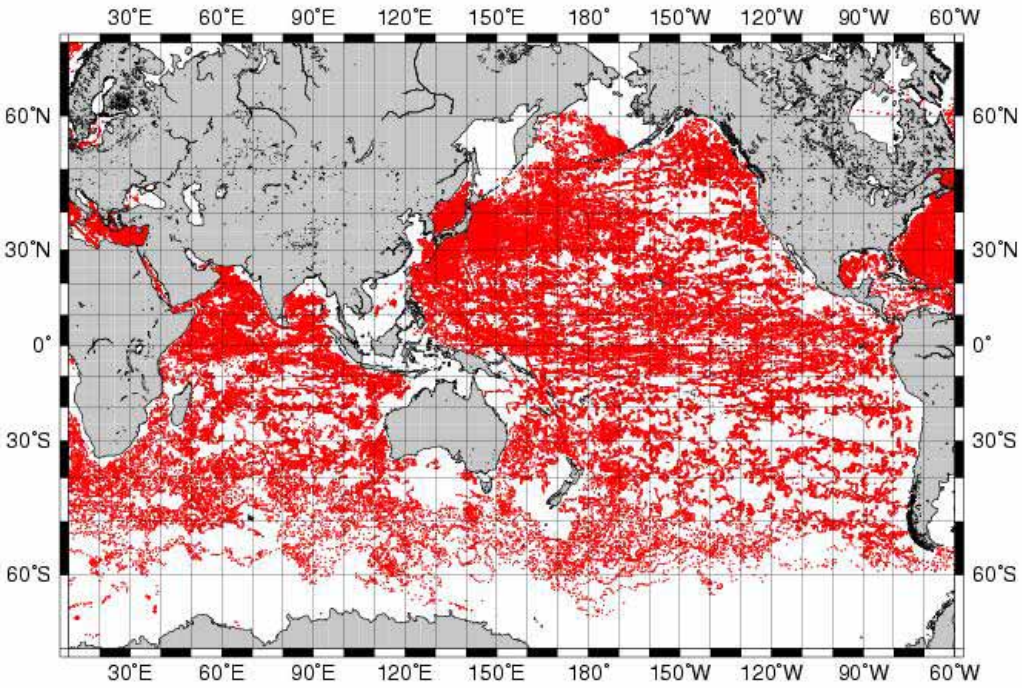


Fig. 1-2 Station Plots for TESAC

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.

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

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. 2 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. 3-1, Fig. 3-2 and Fig. 3-3, respectively.

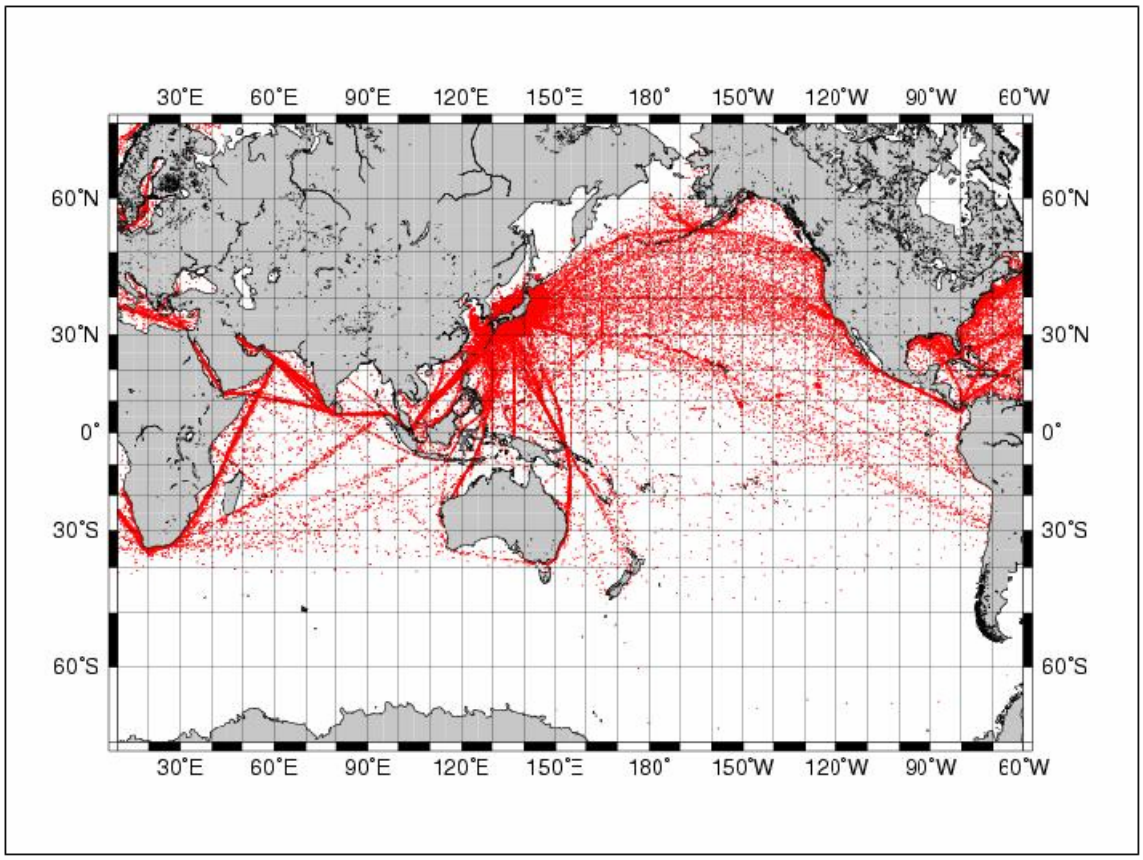


Fig. 2 Station Plots for Oil Slick

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	66	1
2000	544	231	67	0
2001	538	207	40	0
2002	474	169	71	0
2003	469	164	55	0
Total	**15,102**	**13,271**	**5,976**	**122,276**

Table 6 Number of Data Related Marine Pollution

DATA TYPE	NUMBER	DATA TYPE	NUMBER
COD	1,922	PCB	1,603
NH4-N	3,969	As	1,127
Chlorophyll-a	98,845	Pb	1,125
Phaeophytin	19,941	Hg	1,866
TOC	1,126	Total-Hg	2,078
HC	2,054	Cd	3,740

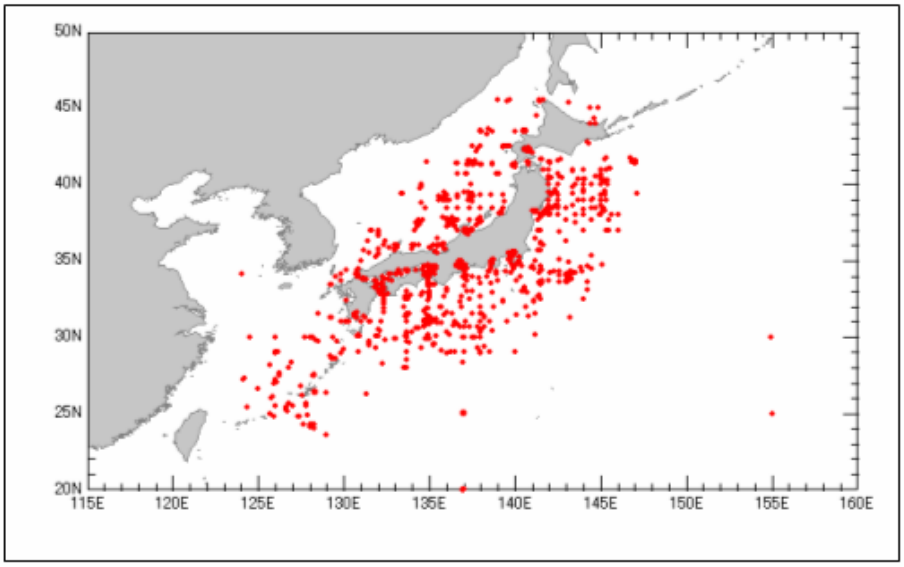


Fig. 3-1 Station Plots for Cd Data in the Northwest Pacific Ocean

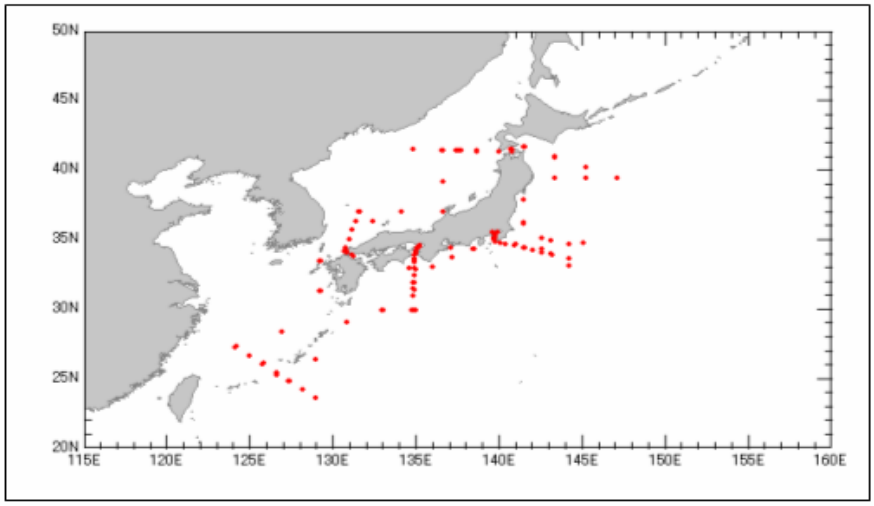


Fig. 3-2 Station Plots for Pb Data in the Northwest Pacific ocean

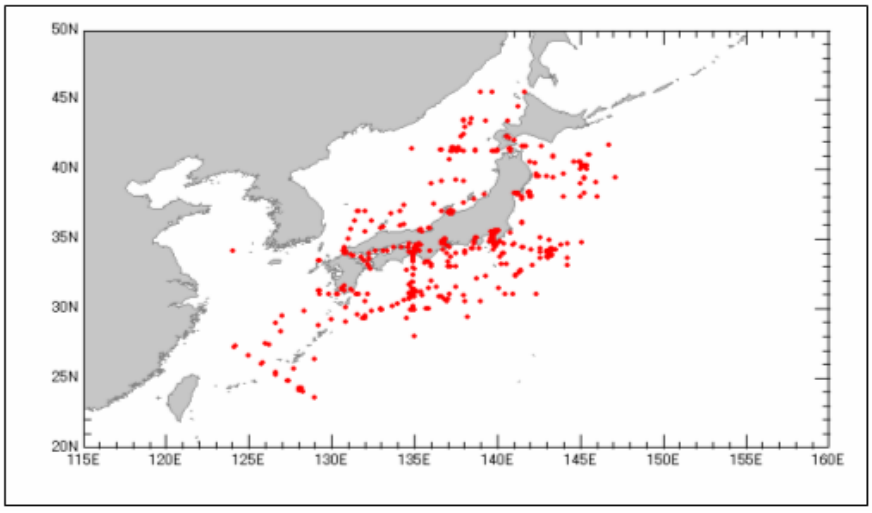


Fig. 3-3 Station Plots for PCB Data in the Northwest Pacific Ocean

3.4. RNODC for ADCP

The JODC is RNODC for ADCP since 1991 and CLIVAR (An International Research Programme on Climate Variability and Predictability) Data Assembly Center (DAC) for Shipboard ADCP in cooperation with the University of Hawaii since 2003.

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 CLIVAR project, World Climate Research Program (WCRP) after the WOCE project finished.

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

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. 4-1 and Fig. 4-2.

Table 7 Number of Archived Data for ADCP

YEAR	NUMBER	YEAR	NUMBER
1985	3,545	1995	319,734
1986	2,994	1996	805,385
1987	4,932	1997	636,971
1988	13,553	1998	555,127
1989	66,249	1999	520,752
1990	77,474	2000	255,013
1991	63,034	2001	154,541
1992	110,666	2002	82,902
1993	125,476	2003	357,078
1994	57,007	2004	232,039
Total			**4,444,472**

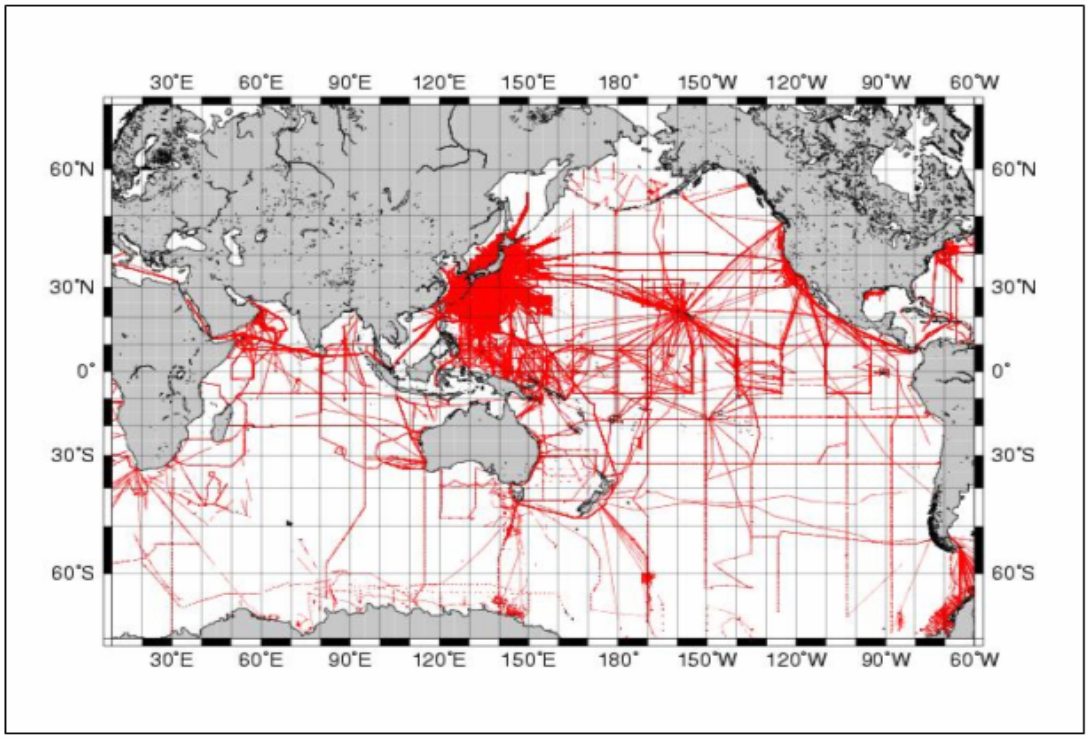


Fig. 4-1 Station Plots for ADCP Data in the Indian Ocean and the Pacific Ocean

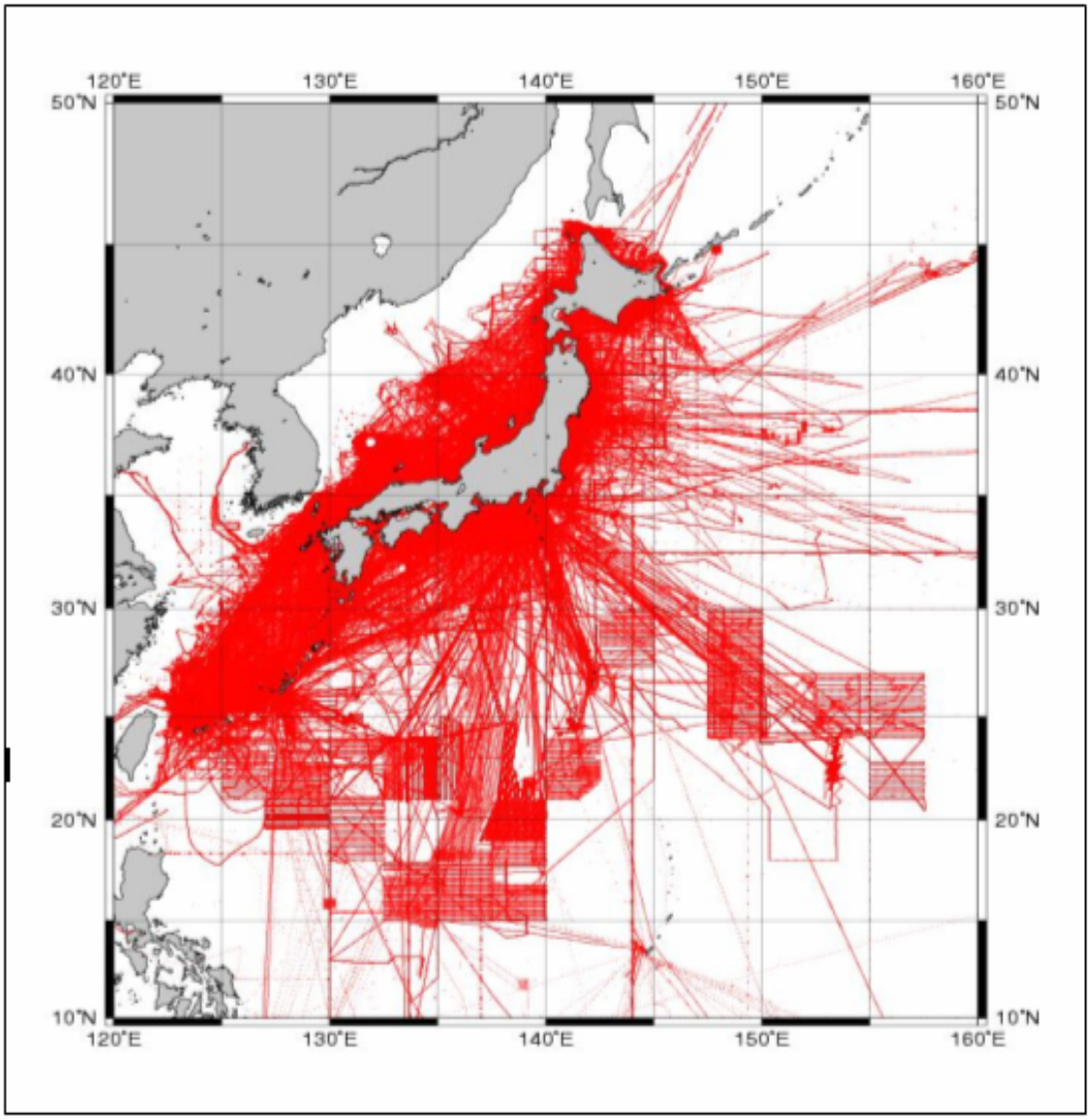


Fig. 4-2 Station Plots for ADCP Data in the Northwest Pacific Ocean

ANNEX I
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 II
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 III
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 IV
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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