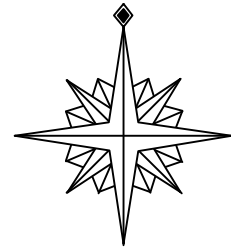
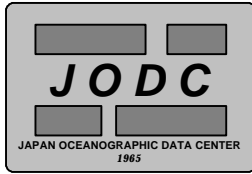


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RNODC ACTIVITY REPORT

No.9

March 1998

Responsible National Oceanographic Data Center

for WESTPAC

for IGOSS

for MARPOLMON

for ADCP

JAPAN OCEANOGRAPHIC DATA CENTER

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PREFACE

The Japan Oceanographic Data Center (JODC) was established in the Hydrographic Department, Maritime Safety Agency of Japan in 1965 in accordance with the resolution adopted by the Intergovernmental Oceanographic Commission (IOC) of UNESCO in 1961.

Since its establishment, JODC has been fulfilling the role of the synthetic marine data bank of Japan, and has been carrying out internationally its services as the National Oceanographic Data Center under the system of International Oceanographic Data and Information Exchange (IODE) and also in charge of the Responsible National Oceanographic Data Center (RNODC) for WESTPAC, IGOSS, MARPOLMON and ADCP.

This annual publication, "RNODC Activity Report" is to inform of the activities of JODC as the aforementioned RNODCs to data contributors, data users, oceanographic community and other national oceanographic data centers within the framework of IODE.

I would like to take this opportunity to express my sincere appreciation for the continuing support given by Institutes and Centers of the IODE System through their sending of data.

March, 1998

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1. Terms of Reference for RNODCs

1.1 RNODC for WESTPAC

Operated by NODC of Japan since 24 February 1979.

- (1) To 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;
- (2) To provide a mechanism for registration of WESTPAC cruises with RNODC - WESTPAC;
- (3) To 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;
- (4) To publish a guide for WESTPAC data management for distribution to Member States through national contact points.

1.2 RNODC for IGOSS (BATHY and TESAC)

Operated by NODCs of Japan, the USA and Russia (then, the USSR) since September 1979.

- (1) To acquire BATHY, TESAC data sets and sub-surface temperature data from drifting and moored buoys from IGOSS Specialized Oceanographic Center (SOC) for area of responsibility;
- (2) To apply supplementary quality control to acquired data and provide services to users after 30 days from receipt of that data;
- (3) To archive, and make available to users, selected data products from SOCs and analysis centres;
- (4) To acquire non-operational BATHY, TESAC and sub-surface temperature data from drifting and moored buoys and/or datasets for area of responsibility;
- (5) To apply quality control of non-operational data, prepare integrated datasets and provide services to users;
- (6) To provide for exchange of IGOSS data in GF-3 format with other RNODCs or to other users as requested;
- (7) To maintain a database and inventories for areas of responsibility;
- (8) To prepare products based on operational and non-operational IGOSS data, as appropriate;
- (9) To transmit to the WDCs annually datasets in GF-3 format, inventories and selected data products;
- (10) To 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;
- (11) To participate in efforts to monitor data flow;
- (12) To participate as feasible in IOC training programmes;

(13) To provide for exchange of documentation and software regarding quality control and processing procedures, with other RNODCs, as possible.

1.3 RNODC for MARPOLMON

Operated by NODCs of Japan, the USA and Russia (then, the USSR) since 3 May 1987.

- (1) To provide a referral capacity to worldwide holdings of marine pollution data.
- (2) To provide copies of processed data to World Data Centres A and B (Oceanography);
- (3) To provide machine listings and simple statistics of marine pollution data;
- (4) To produce graphics of marine pollution data, for the use of concerned Member States;
- (5) To conduct formal or informal training sessions for data centre personnel involved in the programme and for those who actively submit marine pollution data.

1.4 RNODC for ADCP

Operated by NODC of Japan since July 1991.

- (1) To compile and evaluate information on existing data sets held by Member States already active ADCP measurements and produce a catalogue of ADCP users with referral capacity;
- (2) To produce a detailed catalogue of ADCP users that includes information about their ADCP instrumentation, related instrumentation (GPS, Loran, measurement of ship motion, etc.), procedures, averaging/sampling (temporal and spatial vertical and horizontal), quality assurance methods, formats, products and uses of data;
- (3) To establish provisional standards and procedures for the reduction, quality control, archiving, and exchange of ADCP data;
- (4) To assemble a pilot ADCP data archive of samples of ADCP data from other Member States so as to assess the effectiveness of the proposed standards and procedures;
- (5) To prepare guidelines concerning the different performance characteristics and data documentation relevant to each instrument type, in order to formulate adequate data documentation and quality control;
- (6) To report on the progress of RNODC ADCP to the Group of Experts on RNODCs and Climate Data, and to IODE-XIV.

2 Activity of RNODCs

2.1 RNODC-WESTPAC

2.1.1 Activities

Major activities are as follows: --

- (1) The collection and archive of CSR (Cruise Summary Report of IODE, ROSCOPs 3rd edition) and data since the starting of the WESTPAC programme in 1979.
- (2) The annual training course on oceanographic data management carried out from 13 to 24 October 1997 and seven trainees from Korea, Russia and Vietnam were participated.

2.1.2 Data holdings

Data holdings are shown in the following tables and figures: --

- (1) Table 1: The inventory of CSR in 1996.
- (2) Table 2: The numbers of observation station classified according to instruments in each year.
- (3) Fig. 1: The distribution plots of Serial Station Data, CTD and ADCP profiles in 1996.

Table1: Inventory of Archived Data in 1996

AGENCY	SHIP	AREA	PERIOD	DATA TYPE
JHD/MSA	SHOYO	Japan Sea	1996/05/31-1996/06/20	D,H,P-----
JHD/MSA	SHOYO	Japan Sea	1996/09/02-1996/09/22	D,H-----
JHD/MSA	KAIYO (JMSA)	North Pacific	1996/11/05-1996/11/10	G-----
NFRDA/KOREA	CHONNAM 881	East China Sea	1996/04/04-1996/04/08	B,H,M-----
NFRDA/KOREA	KYONGBUK 885	Japan Sea	1996/04/01-1996/04/11	B,H,M-----
NFRDA/KOREA	INCHON 888	Yellow Sea	1996/04/04-1996/04/22	B,H,M-----
NFRDA/KOREA	CHONNAM 881	East China Sea	1996/05/23-1996/05/25	B,H,M-----
NFRDA/KOREA	CHONNAM 881	East China Sea	1996/02/03-1996/02/13	D,H,M-----
NFRDA/KOREA	CHONNAM 881	East China Sea	1996/02/21-1996/02/27	B,H,M-----
NFRDA/KOREA	KYONGBUK 885	Japan Sea	1996/02/08-1996/02/22	B,H,M-----
NFRDA/KOREA	INCHON 888	Yellow Sea	1996/02/07-1996/02/23	B,H,M-----
ORI	TAISEI MARU	East China Sea	1996/01/19-1996/01/27	B,H-----
HMO/JMA	KOFU MARU	North Pacific	1996/01/19-1996/03/01	B,D,G,H,M,P
KMO/JMA	SHUMPU MARU	Seto Naikai	1996/01/19-1996/02/23	B,D,G,H,M,P
NMO/JMA	CHOFU MARU	East China Sea	1996/01/17-1996/03/02	B,D,H,M,P--
MD/JMA	RYOFU MARU	North Pacific	1996/01/17-1996/03/14	B,D,G,H,M,P
MD/JMA	KEIFU MARU	North Pacific	1996/01/26-1996/02/29	D,H,P-----
SAKAI F. HIGH	WAKATAKA MARU	Japan Sea	1996/04/11-1996/04/27	B,H,M-----
NMO/JMA	CHOFU MARU	East China Sea	1996/04/23-1996/05/21	B,D,H,M,P--
KMO/JMA	SHUMPU MARU	Seto Naikai	1996/04/23-1996/05/21	B,D,G,H,M,P

AGENCY	SHIP	AREA	PERIOD	DATA TYPE
HMO/JMA	KOFU MARU	North Pacific	1996/04/26-1996/05/29	B,D,H,M,P--
MD/JMA	RYOFU MARU	North Pacific	1996/04/23-1996/06/03	B,D,G,H,M,P
NAGASAKI UNIV.	NAGASAKI MARU	East China Sea	1996/04/02-1996/04/22	B,H-----
NAGASAKI UNIV.	NAGASAKI MARU	East China Sea	1996/05/09-1996/06/04	B,G,H-----
MMO/JMA	SEIFU MARU	Japan Sea	1996/01/19-1996/03/01	B,D,G,H,M,P
MMO/JMA	SEIFU MARU	Japan Sea	1996/04/22-1996/05/23	B,D,G,H,M,P
EHIME UNIV.	KAKUYO MARU	East China Sea	1996/05/25-1996/06/03	D,H-----
KYUSYU UNIV.	KAKUYO MARU	Japan Sea	1996/06/08-1996/06/20	D-----
NAGASAKI UNIV.	KAKUYO MARU	East China Sea	1996/06/24-1996/07/03	B-----
ORI	TANSEI MARU	North Pacific	1996/04/11-1996/04/17	B,D,H-----
ORI	TANSEI MARU	Western Pacific	1996/04/20-1996/04/26	-----
ORI	TANSEI MARU	Philippine Sea	1996/05/18-1996/05/22	B,H-----
ORI	TANSEI MARU	Philippine Sea	1996/05/25-1996/05/31	G,H-----
ORI	TANSEI MARU	Sagami Bay	1996/06/11-1996/06/19	B,H-----
NAGOYA UNIV.	TANSEI MARU	North Pacific	1996/06/16-1996/06/19	B,D,H-----
MD/JMA	KEIFU MARU	North Pacific	1996/04/23-1996/05/02	D,G,H,M,P--
SAKAI F. HIGH	WAKATAKA MARU	North Pacific	1996/05/24-1996/07/22	B,D,H,M----
NAGASAKI UNIV.	KAKUYO MARU	North Pacific	1996/07/12-1996/08/11	H-----
NFRDA/KOREA	KYONGBUK 885	Japan Sea	1996/06/04-1996/06/11	B,H,M-----
NFRDA/KOREA	INCHON 888	Yellow Sea	1996/06/04-1996/06/12	B,H,M-----
MD/JMA	KEIFU MARU	Philippine Sea	1996/05/21-1996/07/10	D,H,M,P----
NMO/JMA	CHOFU MARU	East China Sea	1996/06/21-1996/08/06	B,D,H,M,P--
KMO/JMA	SHUMPU MARU	Seto Naikai	1996/06/17-1996/07/25	B,D,G,H,M,P
MD/JMA	RYOFU MARU	North Pacific	1996/07/18-1996/08/19	B,D,G,H,M,P
MD/JMA	RYOFU MARU	NW. Pacific	1996/09/03-1996/09/09	H,M-----
HMO/JMA	KOFU MARU	North Pacific	1996/06/13-1996/07/13	B,D,H,M,P--
HMO/JMA	KOFU MARU	NW. Pacific	1996/07/19-1996/08/04	B,D,H,M,P--
MD/JMA	KEIFU MARU	East China Sea	1996/08/09-1996/09/17	D,H,M-----
MMO/JMA	SEIFU MARU	Japan Sea	1996/06/27-1996/08/12	B,D,G,H,M,P
NFRDA/KOREA	CHONNAM 881	East China Sea	1996/08/01-1996/08/09	B,D,H,M----
NFRDA/KOREA	PUSAN 851	East China Sea	1996/08/20-1996/08/24	B,H,M-----
NFRDA/KOREA	KYONGBUK 885	East China Sea	1996/08/01-1996/08/07	B,H,M-----
NFRDA/KOREA	INCHON 866	Yellow Sea	1996/08/05-1996/08/16	B,H,M-----
NFRDA/KOREA	CHONNAM 881	East China Sea	1996/10/07-1996/10/16	B,H,M-----
NFRDA/KOREA	KYONGBUK 885	Japan Sea	1996/10/08-1996/10/17	B,H,M-----
KMO/JMA	SHUMPU MARU	Philippine Sea	1996/10/04-1996/11/07	B,D,G,H,M,P
NFRDA/KOREA	INCHON 888	Yellow Sea	1996/10/07-1996/10/17	B,H,M-----
NFRDA/KOREA	PUSAN 851	East China Sea	1996/10/04-1996/10/11	B,H,M-----
NAGASAKI UNIV.	KAKUYO MARU	North Pacific	1996/10/24-1996/12/21	H-----
JHD/MSA	KAIYO (JMSA)	North Pacific	1996/01/10-1996/01/29	D-----

AGENCY	SHIP	AREA	PERIOD	DATA TYPE
JHD/MSA	SHOYO	East China Sea	1996/01/10-1996/02/08	D,H-----
JHD/MSA	MEIYO	Philippine Sea	1996/01/11-1996/02/03	D-----
JHD/MSA	KAIYO (JMSA)	North Pacific	1996/01/10-1996/01/24	G-----
JHD/MSA	MEIYO	NW. Pacific	1996/01/11-1996/01/28	G-----
JHD/MSA	MEIYO	NW. Pacific	1996/05/31-1996/06/10	G-----
JHD/MSA	MEIYO	Japan Sea	1996/07/16-1996/08/08	G-----
JHD/MSA	TAKUYO	North Pacific	1996/04/18-1996/05/07	G-----
JHD/MSA	TAKUYO	North Pacific	1996/01/10-1996/01/28	G-----
JHD/MSA	MEIYO	North Pacific	1996/09/30-1996/10/28	G-----
NFRDA/KOREA	CHONNAM 881	East China Sea	1996/12/03-1996/12/12	B,H,M-----
NFRDA/KOREA	KYONGBUK 885	Japan Sea	1996/12/03-1996/12/16	B,H,M-----
NFRDA/KOREA	INCHON 888	Yellow Sea	1996/12/08-1996/12/13	B,H,M-----
NMO/JMA	CHOFU MARU	East China Sea	1996/10/02-1996/10/30	B,D,H,M,P--
MD/JMA	RYOFU MARU	North Pacific	1996/10/09-1996/12/06	B,D,G,H,M,P
MD/JMA	KEIFU MARU	East China Sea	1996/10/09-1996/11/18	D,H,M-----
JHD/MSA	TAKUYO	East China Sea	1996/02/16-1996/03/15	D,H-----
JHD/MSA	TENYO	North Pacific	1996/02/29-1996/03/11	D-----
JHD/MSA	SHOYO	North Pacific	1996/04/18-1996/05/07	D,H-----
JHD/MSA	SHOYO	Philippine Sea	1996/07/12-1996/08/10	D,H-----
JHD/MSA	SHOYO	North Pacific	1996/10/29-1996/11/12	D,H-----
JHD/MSA	SHOYO	North Pacific	1996/10/08-1996/10/13	D,H-----
JHD/MSA	KAIYO (JMSA)	North Pacific	1996/02/27-1996/03/04	G-----
KORI/KOREA	PUSAN 801	East China Sea	1996/04/01-1996/09/15	D-----
KORI/KOREA	Fishing boat	Yellow Sea	1996/04/29-1996/09/29	D-----
KORI/KOREA	PUSAN 802	East China Sea	1996/03/22-1996/12/08	D,H-----
NMPA/KOREA	OIL RECOVERY 2	East China Sea	1996/05/03-1996/09/03	P-----
KIGAM/KOREA	TAMHAE		1996/04/05-1996/08/05	G-----
NMPA/KOREA	OIL RECOVERY 5	Yellow Sea	1996/04/15-1996/08/27	P-----
NMPA/KOREA	OIL RECOVERY 6	East China Sea	1996/05/09-1996/09/12	P-----
NMPA/KOREA	OIL RECOVERY 7	East China Sea	1996/05/06-1996/09/14	-----
NMPA/KOREA	OIL RECOVERY 9	Japan Sea	1996/04/29-1996/09/07	P-----
NMPA/KOREA	OIL RECOVERY 1	Japan Sea	1996/05/01-1996/09/05	P-----
NMPA/KOREA	OIL RECOVERY 1	Yellow Sea	1996/04/25-1996/08/29	P-----
NMPA/KOREA	Patrol	Yellow Sea	1996/05/07-1996/09/11	-----
NMPA/KOREA	Patrol	Japan Sea	1996/04/29-1996/08/28	P-----
KORDI/KOREA	EARDO	Japan Sea	1996/07/04-1996/07/09	G-----
KORDI/KOREA	EARDO	Yellow Sea	1996/06/23-1996/06/28	D-----
KORDI/KOREA	EARDO	Japan Sea	1996/08/02-1996/08/18	B,D,H,P----
KORDI/KOREA	ONNURI	East China Sea	1996/10/02-1996/10/13	B,D,H-----
NMO/JMA	CHOFU MARU	East China Sea	1996/11/19-1996/12/17	B,D,H,M----

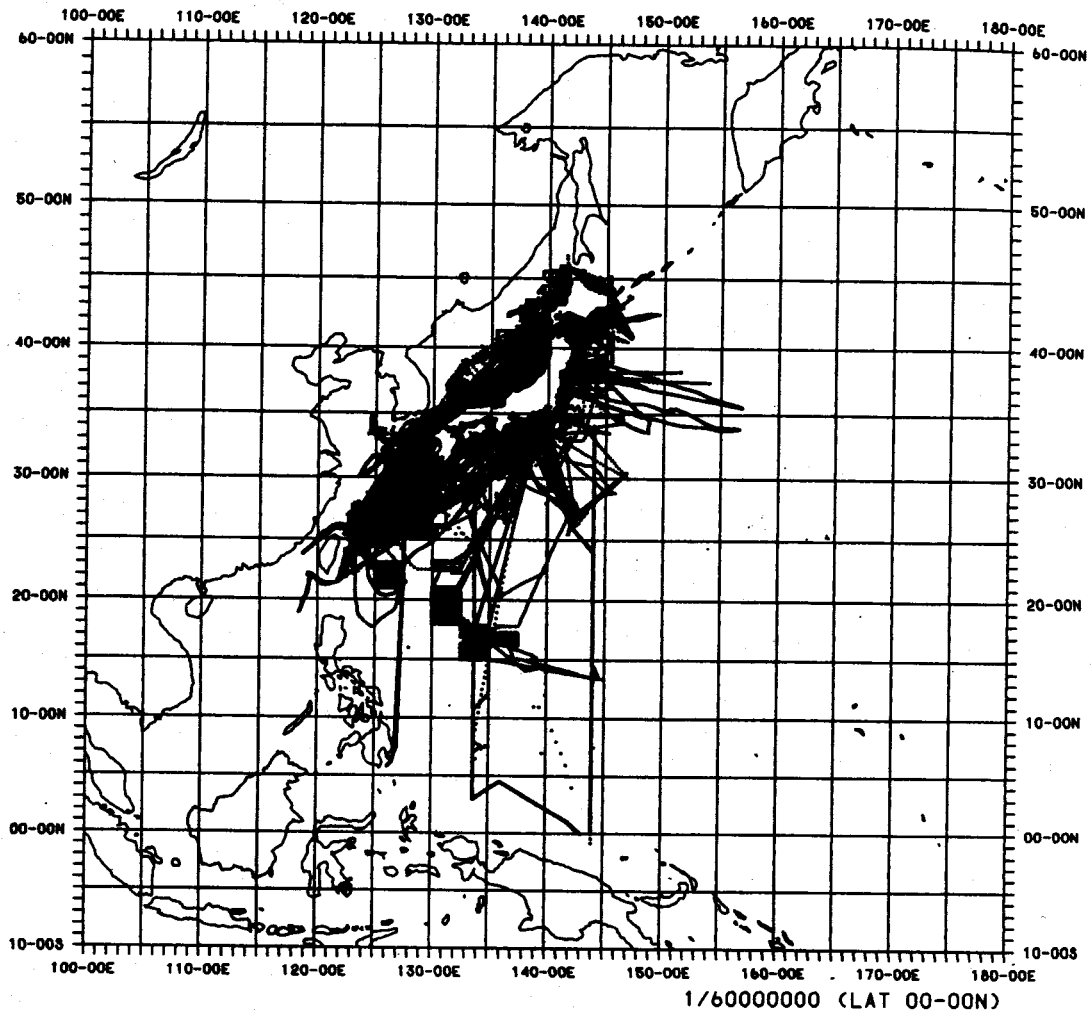
AGENCY	SHIP	AREA	PERIOD	DATA TYPE
MMO/JMA	SEIFU MARU	Japan Sea	1996/11/22-1996/12/20	B,D,G,H,M--
ORI	HAKUHO MARU	East China Sea	1996/10/17-1996/11/27	B,D,H,M----
ORI	TANSEI MARU		1996/08/23-1996/08/30	B,H-----
ORI	TANSEI MARU	NW. Pacific	1996/09/02-1996/09/11	B,D,G,H----
ORI	TANSEI MARU	Philippine Sea	1996/11/08-1996/11/17	G-----
HMO/JMA	KOFU MARU	North Pacific	1996/10/09-1996/10/30	B,D,H,M,P--
HMO/JMA	KOFU MARU	North Pacific	1996/11/15-1996/12/17	B,D,H,M----
JHD/MSA	KAIYO (JMSA)	North Pacific	1996/01/10-1996/01/29	D-----
JHD/MSA	SHOYO	East China Sea	1996/01/10-1996/02/08	D,H-----
JHD/MSA	MEIYO	Philippine Sea	1996/01/11-1996/02/03	D-----
JHD/MSA	TAKUYO	East China Sea	1996/02/16-1996/03/15	D,G,H-----
JHD/MSA	TENYO	North Pacific	1996/02/29-1996/03/11	D-----
JHD/MSA	SHOYO	North Pacific	1996/04/18-1996/05/07	D,H-----
JHD/MSA	SHOYO	North Pacific	1996/07/12-1996/08/10	D,H-----
JHD/MSA	SHOYO	North Pacific	1996/10/08-1996/10/13	D,H-----
JHD/MSA	SHOYO	North Pacific	1996/10/28-1996/11/12	D,H-----
ORI	HAKUHO MARU	Andaman Sea	1996/12/19-1997/02/18	G,H-----

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

Table 2: Number of Observation Station at JODC

	NANSEN	STD	CTD	MBT	XBT	DBT	GEK	ADCP
1979	0	14	1,095	0	0	138	52	0
1980	0	32	1,072	0	0	164	65	0
1981	17	14	1,008	0	3	156	0	0
1982	0	0	1,047	0	0	0	0	0
1983	67	0	1	0	0	0	169	0
1984	0	0	0	0	0	249	0	0
1985	773	0	92	0	546	1,556	1,458	1,110
1986	745	0	112	0	509	1,720	1,322	1,085
1987	0	0	344	0	154	46	0	850
1988	0	0	337	0	0	0	0	776
1989	0	0	0	0	0	0	0	1,418
1990	908	0	0	0	417	86	0	3,680
1991	918	0	0	0	449	78	0	3,636
1992	806	0	181	0	350	0	0	2,317
1993	71	0	1,851	0	175	13	0	3,161
1994	131	0	748	0	336	68	0	1,891
1995	5	0	185	0	1,395	0	0	0
1996	0	0	0	0	0	0	0	0
Total	4,441	60	8,073	0	4,334	4,274	3,066	19,924

Fig.1: Serial Station Data, CTD and ADCP Profiles in 1997



2.2 RNODC-IGOSS (Integrated Global Ocean Services System)

2.2.1 Activities

Major activities are as follows: --

- (1) The management of the data for specific geographical areas as RNODC with the responsibility since the starting of the IGOSS project in 1977.
- (2) The report of the state of data management to IOC and WMO twice a year.

2.2.2 Data holdings

JODC received BATHY/TESAC data for 1997 from JMA (Japan Meteorological Agency), that is one of SOC, and applied quality control procedure for final archiving.

Data holdings are shown in the following tables and figures: --

- (1) Table 3: The number of archived data in 1997, which the country names are identified from the call sign. The call sign "SHIP" is assigned to data with no call sign.
- (2) Table 4: The number of archived data by country and by year.
- (3) Fig 2: The number of data in 10 degrees mesh archived in 1997.
- (4) Fig 3: The observation spots for data archived in 1997.
- (5) Fig 4: The volume of archived data by year.
- (6) Fig 5: The contribution plots of data by country and by year.

Table 3: Number of BATHY/TESAC data archived at JODC in 1997.

SHIP	1	2	3	4	5	6	7	8	9	10	11	12	TOTAL
2GQZ ENGLAND	0	0	0	1	0	0	0	0	0	0	0	0	1
3ETQ PANAMA	0	0	0	0	0	0	0	0	0	1	0	0	1
3EVS PANAMA	0	0	0	0	14	43	37	53	39	50	34	36	306
7JWN JAPAN	0	5	4	0	0	0	0	0	0	0	0	0	9
8JIF JAPAN	0	0	0	0	38	15	14	3	0	8	0	0	78
9KKH KUWAIT	0	0	0	0	0	40	0	0	0	0	0	0	40
9VBL SINGAPORE	0	0	101	94	0	34	27	0	25	25	0	25	331
9VVB SINGAPORE	11	3	0	9	33	33	4	0	0	16	0	0	109
9VWM SINGAPORE	0	0	0	0	18	0	15	0	18	0	0	4	55
A3CA TONGA	0	0	0	0	0	16	0	0	15	0	0	0	31
A8BN LIBERIA	0	0	0	0	4	47	0	0	0	0	0	0	51
BOAB CHINA	3	0	1	10	18	4	12	18	5	0	1	9	81
BUA5 CHINA	0	0	0	0	0	0	0	0	0	0	0	11	11
CCCC CHILE	0	1	0	1	0	2	0	0	0	1	0	0	5
CGAG CANADA	0	0	0	4	3	0	0	0	0	0	0	0	7

SHIP	1	2	3	4	5	6	7	8	9	10	11	12	TOTAL
CGAK CANADA	0	0	0	0	0	0	2	0	0	0	0	0	2
CGAN CANADA	0	0	0	0	0	8	0	0	0	0	0	0	8
CGAZ CANADA	0	0	0	0	0	0	0	0	1	0	0	0	1
CGBS CANADA	0	0	0	0	68	0	161	0	0	10	0	0	239
CGCB CANADA	25	0	0	0	3	0	93	4	0	0	0	0	125
CGDG CANADA	0	0	0	0	10	34	23	0	0	0	0	0	67
CGDV CANADA	0	0	0	171	91	80	0	52	0	25	0	0	419
CGHL CANADA	0	0	34	0	0	0	0	0	0	0	0	0	34
CGJL CANADA	0	0	0	6	4	0	0	0	0	0	1	0	11
CGZP CANADA	0	0	3	1	0	0	0	0	2	1	0	0	7
CHAA CANADA	0	9	46	1	35	0	0	15	25	76	45	0	252
CHAC CANADA	0	0	16	0	0	0	0	0	0	0	2	0	18
CHAD CANADA	0	0	0	16	25	1	0	23	25	0	0	0	90
CTFI PORTUGAL	0	0	0	2	0	1	0	0	0	0	0	0	3
CWOW URUGUAY	0	0	1	0	0	0	0	0	0	0	0	0	1
CYWK CANADA	0	0	0	1	0	0	0	0	0	0	0	0	1
CYWM CANADA	0	4	12	0	2	4	0	0	0	0	0	0	22
CZCW CANADA	0	0	4	0	0	0	0	0	1	21	3	0	29
CZGD CANADA	0	0	0	1	0	29	0	18	19	0	4	0	71
D5BC LIBERIA	4	0	0	0	0	0	0	0	0	0	0	0	4
D5NZ LIBERIA	7	2	11	23	29	22	29	40	19	19	16	7	224
DACF GERMANY,FED.	50	0	58	1	23	57	0	57	54	0	51	0	351
DBBH GERMANY,FED.	0	0	0	0	0	54	0	135	79	0	0	0	268
DBFR GERMANY,FED.	0	0	0	0	0	0	0	0	0	30	35	0	65
DBLK GERMANY,FED.	0	0	131	9	0	0	0	0	0	0	28	0	168
DHCM GERMANY,FED.	18	3	0	0	0	0	0	0	0	0	0	0	21
DIDA GERMANY,FED.	8	15	15	0	0	0	0	0	0	0	0	0	38
DUGK PHILIPPINES	0	0	0	13	0	0	0	0	0	0	0	0	13
DUWH PHILIPPINES	0	0	8	37	23	7	41	29	21	19	13	30	228
DVFS PHILIPPINES	0	0	2	30	23	36	26	26	0	1	0	2	146
DYZJ PHILIPPINES	0	0	0	0	16	0	0	0	0	0	0	0	16
FFCH FRANCE	0	2	9	2	6	5	0	0	0	0	2	0	26
FHZI FRANCE	47	13	9	0	0	0	0	0	0	0	0	0	69
FNAV FRANCE	0	0	0	0	30	45	0	0	0	0	0	0	75
FNCK FRANCE	0	0	0	0	0	27	17	0	0	0	0	0	44
FNDH FRANCE	5	3	7	40	21	15	18	17	27	18	12	22	205
FNDK FRANCE	21	0	23	0	28	0	0	20	1	32	17	0	142
FNPA FRANCE	40	16	0	0	0	0	0	0	0	0	0	0	56
FNQC FRANCE	19	5	0	19	0	29	0	0	0	7	0	22	101
FNTL FRANCE	0	0	0	0	30	0	31	11	0	60	0	15	147

SHIP	1	2	3	4	5	6	7	8	9	10	11	12	TOTAL
FNWC FRANCE	4	26	0	40	0	0	0	0	0	0	0	0	70
FNZQ FRANCE	0	49	15	0	58	0	17	0	49	0	16	6	210
G0XI UNKNOWN	0	0	1	0	0	0	0	0	0	0	0	0	1
GCOD ENGLAND	0	0	0	0	1	0	0	0	0	0	0	0	1
GDLS ENGLAND	1	0	0	0	0	0	0	0	0	7	15	0	23
GUUS ENGLAND	0	0	0	0	0	0	0	0	0	1	0	0	1
GYRW ENGLAND	36	22	0	41	8	0	55	4	0	65	0	0	231
GYSE ENGLAND	0	0	0	11	0	18	38	0	43	9	0	37	156
GYXG ENGLAND	0	10	0	0	51	0	37	24	0	42	12	0	176
HPEW PANAMA	54	23	43	27	43	39	39	53	42	21	39	9	432
J8IU UNKNOWN	1	13	0	0	0	0	0	0	0	0	0	0	14
JBOA JAPAN	14	12	0	17	34	32	6	55	30	38	43	0	281
JCCX JAPAN	37	43	10	48	39	5	68	0	0	53	45	9	357
JCOD JAPAN	19	10	0	0	0	38	0	19	0	0	2	48	136
JDRD JAPAN	61	27	18	0	0	12	0	0	9	16	0	0	143
JDWX JAPAN	18	61	0	18	104	34	42	21	0	71	26	29	424
JFDG JAPAN	11	39	0	39	32	16	45	37	37	93	6	0	355
JFPQ JAPAN	62	9	66	47	48	62	36	27	60	45	33	37	532
JGBB JAPAN	8	0	0	0	0	0	0	0	0	0	0	0	8
JGDW JAPAN	0	0	38	0	0	51	0	36	0	0	55	0	180
JGKL JAPAN	0	0	0	0	26	23	0	0	0	0	0	0	49
JGQH JAPAN	31	23	0	29	5	60	18	0	41	27	14	0	248
JITV JAPAN	73	40	43	73	34	58	38	67	29	37	58	65	615
JIVB JAPAN	38	63	0	41	67	22	76	20	0	67	58	34	486
JJ66 JAPAN	0	0	0	0	0	0	0	0	0	0	1	0	1
JJEB JAPAN	0	0	0	0	65	31	18	11	59	23	0	0	207
JMRV JAPAN	0	0	0	0	31	70	0	0	0	0	0	0	101
JNSR JAPAN	0	0	0	0	0	0	0	0	0	0	6	37	43
JNZN JAPAN	0	124	47	0	0	0	0	0	0	0	13	0	184
JQIX JAPAN	0	0	0	0	0	0	0	0	0	0	55	0	55
JRBM JAPAN	0	19	0	0	0	0	0	0	0	0	0	0	19
JRPG JAPAN	0	0	0	0	0	0	0	44	0	0	0	0	44
JSVY JAPAN	0	0	6	4	0	0	0	0	0	0	4	0	14
KGJB U.S.A.	0	0	0	5	4	3	4	0	5	12	13	25	71
KIRH U.S.A.	5	10	3	0	8	1	0	0	3	2	0	0	32
KJDG U.S.A.	0	0	0	0	0	0	29	0	0	0	0	0	29
KJLV U.S.A.	0	10	8	0	6	3	18	30	34	14	3	27	153
KKFW U.S.A.	0	0	0	0	0	0	0	1	0	0	0	0	1
KNFG U.S.A.	0	0	12	0	5	2	1	1	4	2	6	10	43
KNFH U.S.A.	0	0	1	0	0	0	0	0	0	0	0	0	1

SHIP	1	2	3	4	5	6	7	8	9	10	11	12	TOTAL
KRGB U.S.A.	22	6	35	120	53	53	40	55	29	82	46	22	563
KVWA U.S.A.	0	0	0	0	0	0	1	0	0	0	0	0	1
LOAD ARGENTINA	0	0	0	4	0	0	0	1	0	0	0	0	5
LOAI ARGENTINA	1	0	0	0	0	0	0	0	0	0	0	0	1
LOAM ARGENTINA	0	0	0	2	2	0	2	0	2	4	0	0	12
LOBK ARGENTINA	0	0	0	2	0	0	0	0	1	0	0	0	3
LODP ARGENTINA	0	0	0	0	0	1	0	0	0	0	0	0	1
LOML ARGENTINA	0	0	0	1	2	0	0	1	3	0	0	0	7
LONR ARGENTINA	0	0	0	0	0	0	0	0	0	0	1	0	1
LOPD ARGENTINA	0	0	0	0	0	3	0	0	15	8	0	0	26
LORN ARGENTINA	0	0	0	0	0	0	0	0	0	0	5	0	5
LOSP ARGENTINA	0	0	0	2	1	0	0	0	0	0	0	0	3
LQHS ARGENTINA	0	0	0	0	0	0	0	0	4	0	0	0	4
NANY U.S.A.	0	0	9	0	0	0	0	0	0	0	0	0	9
NARK U.S.A.	0	1	0	0	0	0	0	0	0	0	0	0	1
NBTM U.S.A.	0	0	0	0	0	0	0	0	0	8	9	18	35
NCBD U.S.A.	0	2	0	0	0	0	0	0	0	0	0	0	2
NCDP U.S.A.	0	7	0	0	0	0	0	0	0	0	0	0	7
NCDW U.S.A.	0	6	0	0	0	0	0	0	0	0	0	0	6
NCHO U.S.A.	2	3	0	0	0	0	0	0	0	0	0	0	5
NCPN U.S.A.	0	8	0	0	0	0	0	0	0	0	0	0	8
NDCP U.S.A.	3	0	0	0	0	0	0	0	0	0	0	0	3
NDDG U.S.A.	0	0	0	0	0	0	0	7	0	6	11	0	24
NDDW U.S.A.	0	4	0	0	0	0	0	0	0	0	0	0	4
NDKP U.S.A.	0	8	0	0	0	0	0	0	0	0	0	0	8
NDQV U.S.A.	0	0	3	0	0	0	0	0	0	0	0	0	3
NDSC U.S.A.	0	0	0	12	0	0	1	0	0	0	0	0	13
NFBS U.S.A.	0	14	0	0	0	0	0	0	0	0	0	0	14
NFTZ U.S.A.	0	2	0	0	0	0	0	0	0	0	0	0	2
NGKK U.S.A.	0	0	0	0	8	12	0	9	10	0	0	0	39
NGSR U.S.A.	0	6	0	0	0	0	0	0	0	0	0	0	6
NHKX U.S.A.	1	6	0	0	0	0	0	0	0	0	0	0	7
NHOC U.S.A.	0	1	0	0	0	0	0	0	0	0	0	0	1
NHOP U.S.A.	0	0	0	0	0	0	0	17	2	0	0	0	19
NHUE U.S.A.	0	0	4	0	0	0	0	0	0	0	0	0	4
NIDK U.S.A.	0	0	29	34	52	1	28	0	0	0	0	0	144
NJFK U.S.A.	0	12	40	0	0	0	0	0	0	0	0	0	52
NJFL U.S.A.	0	0	0	14	0	0	0	0	0	4	2	0	20
NJHS U.S.A.	0	2	0	0	0	0	0	0	0	0	0	0	2
NJSM U.S.A.	13	20	14	16	0	6	0	12	3	8	0	0	92

SHIP	1	2	3	4	5	6	7	8	9	10	11	12	TOTAL
NJST U.S.A.	1	8	3	0	0	0	0	0	0	0	0	0	12
NLP3 U.S.A.	0	0	0	0	0	0	0	49	46	0	0	0	95
NMDK U.S.A.	0	4	0	0	0	0	0	0	0	0	0	0	4
NMDX U.S.A.	0	9	0	0	0	0	0	0	0	0	0	0	9
NMOB U.S.A.	1	6	0	0	0	0	0	0	0	0	0	0	7
NNNN U.S.A.	3	19	0	0	0	0	0	0	0	0	0	0	22
NNUD U.S.A.	72	50	0	98	203	119	97	58	25	0	0	0	722
NOTC U.S.A.	0	0	0	0	0	0	0	0	0	13	23	0	36
NOTH U.S.A.	3	0	0	0	0	0	0	0	0	0	0	0	3
NPES U.S.A.	0	13	0	0	0	0	0	0	0	0	0	0	13
NPFD U.S.A.	26	2	1	0	0	0	0	0	0	0	0	0	29
NRCD U.S.A.	2	15	0	0	0	0	0	0	0	0	0	0	17
NRCS U.S.A.	0	0	0	0	0	1	0	0	0	0	0	0	1
NRED U.S.A.	1	0	0	0	0	0	0	0	0	0	0	0	1
NRWH U.S.A.	0	0	0	0	0	0	0	0	0	1	0	0	1
NRWS U.S.A.	0	0	0	18	2	0	0	0	0	3	8	0	31
NSWG U.S.A.	1	13	0	0	0	0	0	0	0	0	0	0	14
NSZK U.S.A.	1	0	0	0	0	0	0	0	0	0	0	0	1
NVMS U.S.A.	0	3	0	0	0	0	0	0	0	0	0	0	3
NVVV U.S.A.	0	0	0	0	0	0	0	0	0	20	0	0	20
NZAU U.S.A.	0	0	0	16	63	87	98	50	0	0	0	0	314
NZSK U.S.A.	57	91	75	77	48	76	44	53	61	70	23	0	675
PADF NETHERLANDS	0	0	0	0	0	0	0	0	1	0	0	0	1
PAGE NETHERLANDS	9	7	2	11	4	0	3	4	2	1	3	0	46
PBBB NETHERLANDS	0	0	0	0	0	0	0	1	0	0	0	0	1
PGBB NETHERLANDS	24	24	2	18	164	4	7	140	52	0	29	20	484
PJJU NETHERLANDS	23	9	13	4	23	24	30	13	22	18	22	3	204
PJKU NETHERLANDS	0	0	0	0	0	0	0	1	0	0	0	0	1
RERA RUSSIA(USSR)	0	1	0	0	0	0	0	0	0	0	0	0	1
S6FK SINGAPORE	52	52	58	59	28	61	56	44	37	45	49	38	579
SBFX SWEDEN	0	0	1	0	1	1	0	2	2	1	0	0	8
SEXL SWEDEN	0	1	0	1	0	0	0	0	0	0	0	0	2
SEXQ SWEDEN	3	2	1	1	0	2	1	2	1	1	0	0	14
SEYD SWEDEN	0	0	0	2	0	2	0	0	0	0	0	0	4
SHIP UNKNOWN	2,562	2,854	3,925	2,778	3,216	2,976	2,928	3,281	4,124	3,443	2,885	2,927	37,899
SHPF SWEDEN	0	0	0	0	0	1	0	1	0	0	0	0	2
SHQP SWEDEN	0	0	1	0	0	0	0	1	0	0	0	1	3
SKUP SWEDEN	0	0	0	0	0	0	1	0	0	0	0	0	1
SKVP SWEDEN	0	0	0	0	0	1	0	0	1	0	0	0	2
SMZQ SWEDEN	2	0	2	0	0	1	2	0	0	0	2	0	9

SHIP	1	2	3	4	5	6	7	8	9	10	11	12	TOTAL
SMZT SWEDEN	0	1	1	2	0	0	3	2	1	0	3	0	13
TEST COSTA RICA	0	0	0	0	0	0	0	0	0	9	0	0	9
UAUQ RUSSIA(USSR)	0	0	0	0	0	0	0	0	0	0	4	68	72
V2EZ UNKNOWN	0	2	12	0	0	5	7	0	14	8	0	0	48
V2GB UNKNOWN	0	0	0	0	0	0	22	0	0	0	22	0	44
VCQR CANADA	7	0	0	0	0	0	0	0	0	0	0	0	7
VJDI AUSTRALIA	44	0	0	74	1	0	0	54	25	0	0	0	198
VJDP AUSTRALIA	13	27	38	31	43	12	50	0	59	17	29	22	341
VKCN AUSTRALIA	2	14	29	29	0	0	0	0	0	3	22	0	99
VKDA AUSTRALIA	1	10	3	21	6	0	0	0	0	0	0	0	41
VKLA AUSTRALIA	6	10	5	8	8	0	6	6	0	0	0	0	49
VKLB AUSTRALIA	0	18	0	1	4	0	3	0	0	4	0	0	30
VKLC AUSTRALIA	0	18	31	7	0	0	5	23	4	2	13	0	103
VKLP AUSTRALIA	8	18	37	16	0	0	0	0	30	44	52	0	205
VKML AUSTRALIA	10	8	3	12	22	0	5	12	0	0	0	0	72
VKNG AUSTRALIA	0	0	0	13	1	0	10	26	0	2	9	0	61
VKPT AUSTRALIA	9	10	0	0	7	3	0	0	0	0	0	0	29
VLNB AUSTRALIA	9	14	0	0	0	0	4	18	0	0	0	0	45
VLNC AUSTRALIA	0	0	0	27	4	1	4	8	7	0	0	0	51
VLNK AUSTRALIA	0	0	0	0	0	0	0	1	0	0	0	0	1
VP45 ENGLAND	0	0	0	0	0	0	0	0	102	0	0	0	102
VRSC ENGLAND	0	0	17	0	20	0	19	0	15	0	15	0	86
VRSR ENGLAND	0	0	0	0	0	0	0	0	0	60	27	0	87
WMLH U.S.A.	0	0	0	0	0	0	0	0	5	10	10	0	25
WPGK U.S.A.	14	4	6	0	0	20	44	38	39	0	0	3	168
WSRL U.S.A.	24	13	8	0	0	0	22	2	2	0	26	25	122
WTEJ U.S.A.	0	0	1	0	1	0	0	0	0	0	0	0	2
WTEU U.S.A.	0	2	0	0	0	0	0	0	0	0	0	0	2
WUBV U.S.A.	0	0	0	0	1	24	0	0	0	0	0	0	25
WXBR U.S.A.	0	0	0	29	0	0	0	0	0	26	0	0	55
WZJF U.S.A.	0	16	27	6	7	27	69	2	58	41	40	58	351
Y3CH GERMANY,FED.	0	0	0	0	0	0	0	12	0	0	0	0	12
Y3CW GERMANY,FED.	0	13	0	0	12	0	0	0	0	8	7	0	40
YQPP ROMANIA	0	0	0	0	0	0	0	0	0	0	1	0	1
ZSDN SOUTH AFRICA	0	8	14	16	10	0	0	0	12	0	0	0	60
ZSDS SOUTH AFRICA	0	0	0	0	0	0	3	9	0	18	0	34	64
ZSPP SOUTH AFRICA	0	0	0	0	0	0	0	0	6	9	11	4	30
ZTSG 91UTH AFRICA	0	0	0	0	0	0	0	0	0	14	0	3	17

Fig.2: Number of IGOSS BATHY & TESAC Data in 1997 in 10 mesh

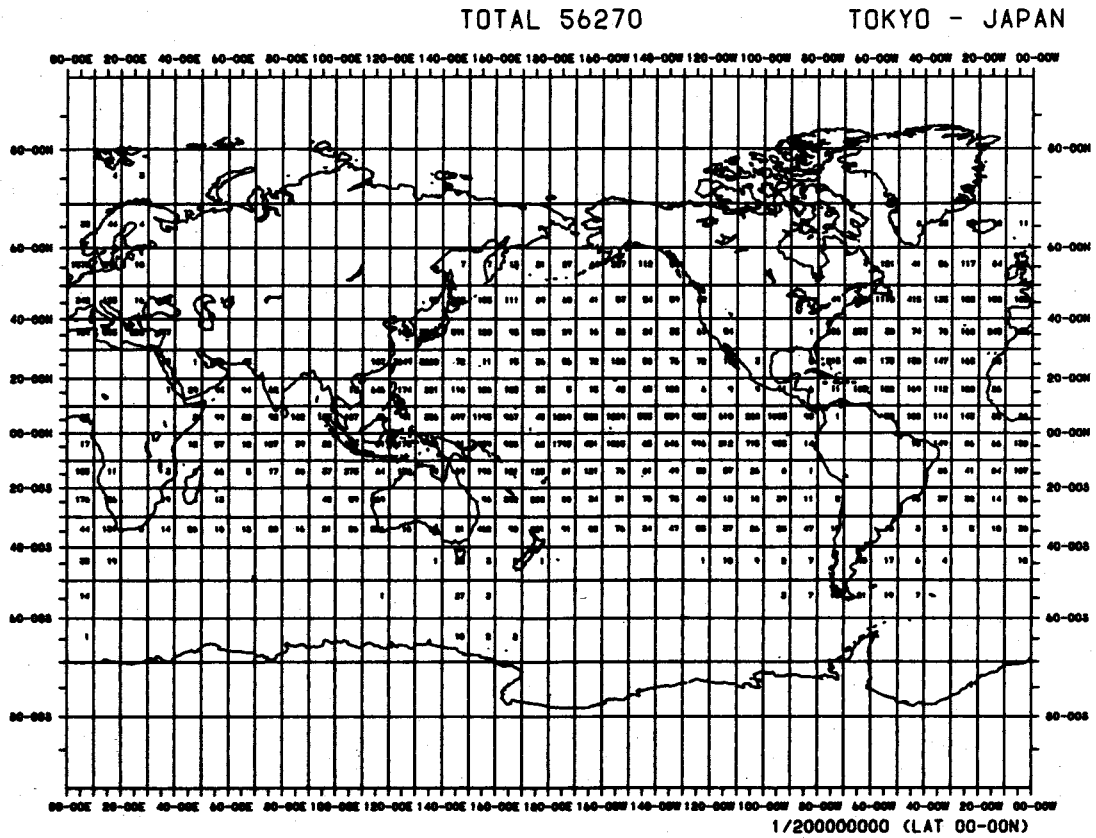


Fig.3: Observation Spots for IGOSS BATHY & TESAC in 1997

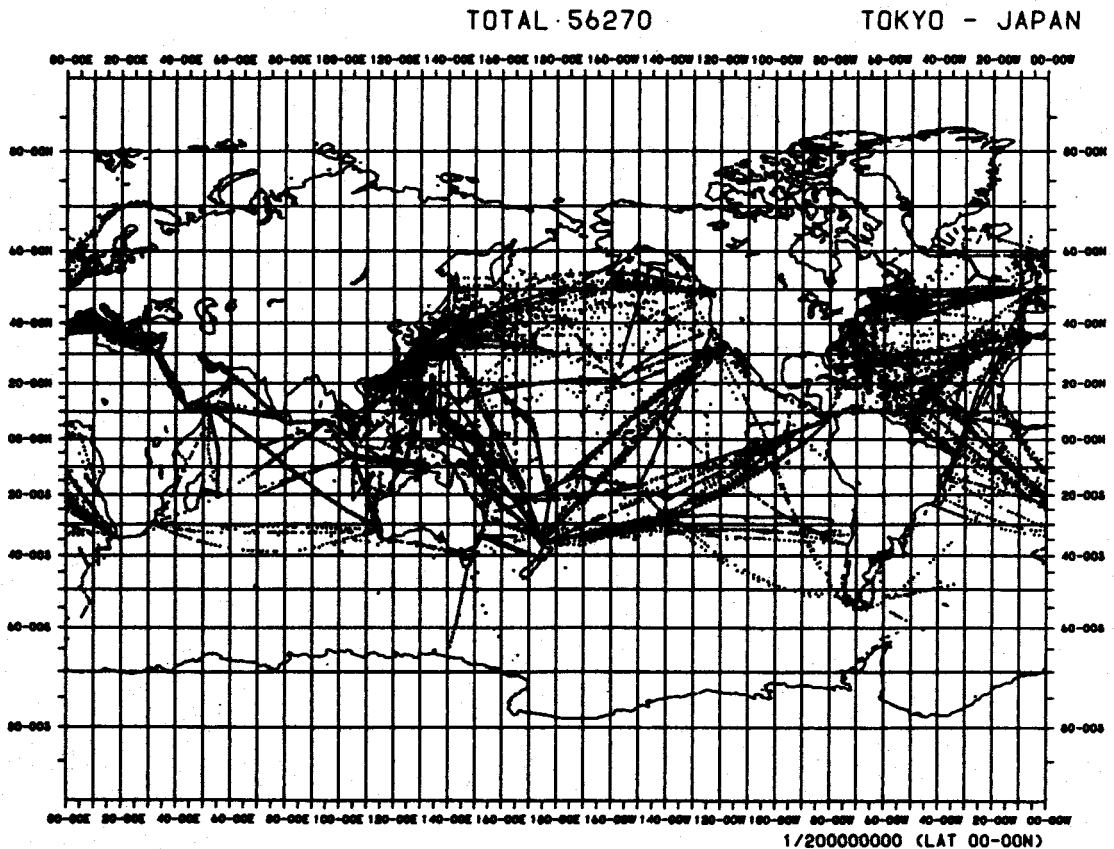


Fig.4: Archived Data by Year

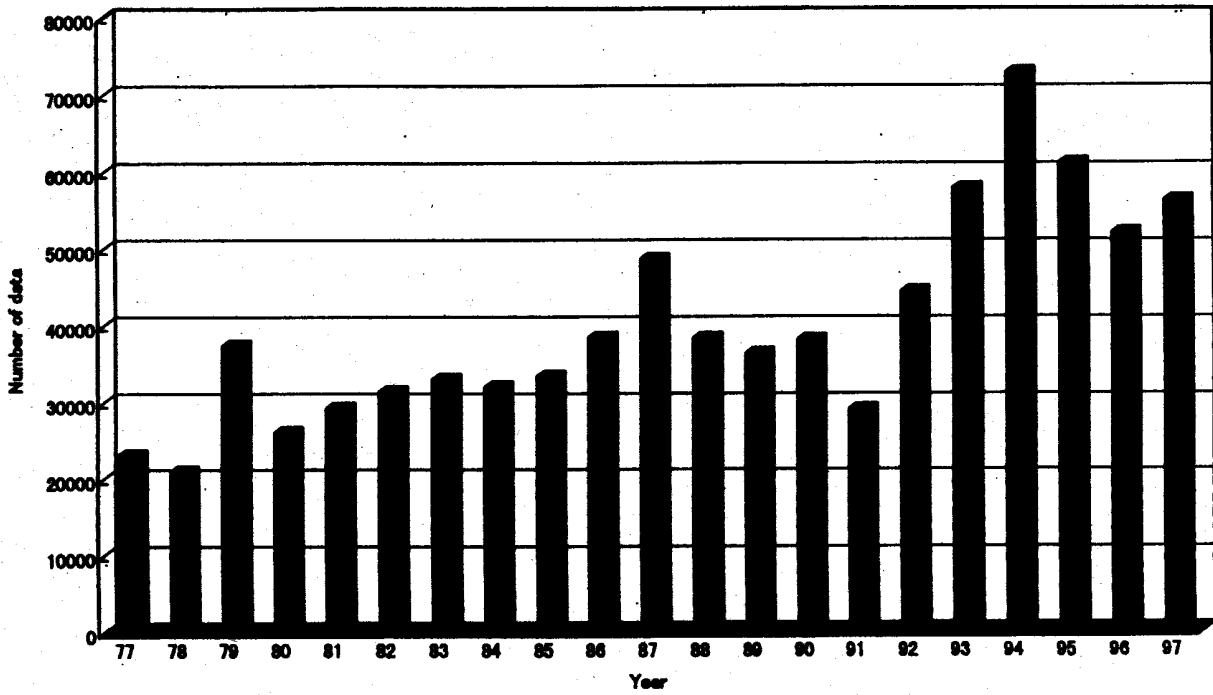


Fig.5: Contribution by Country by Year

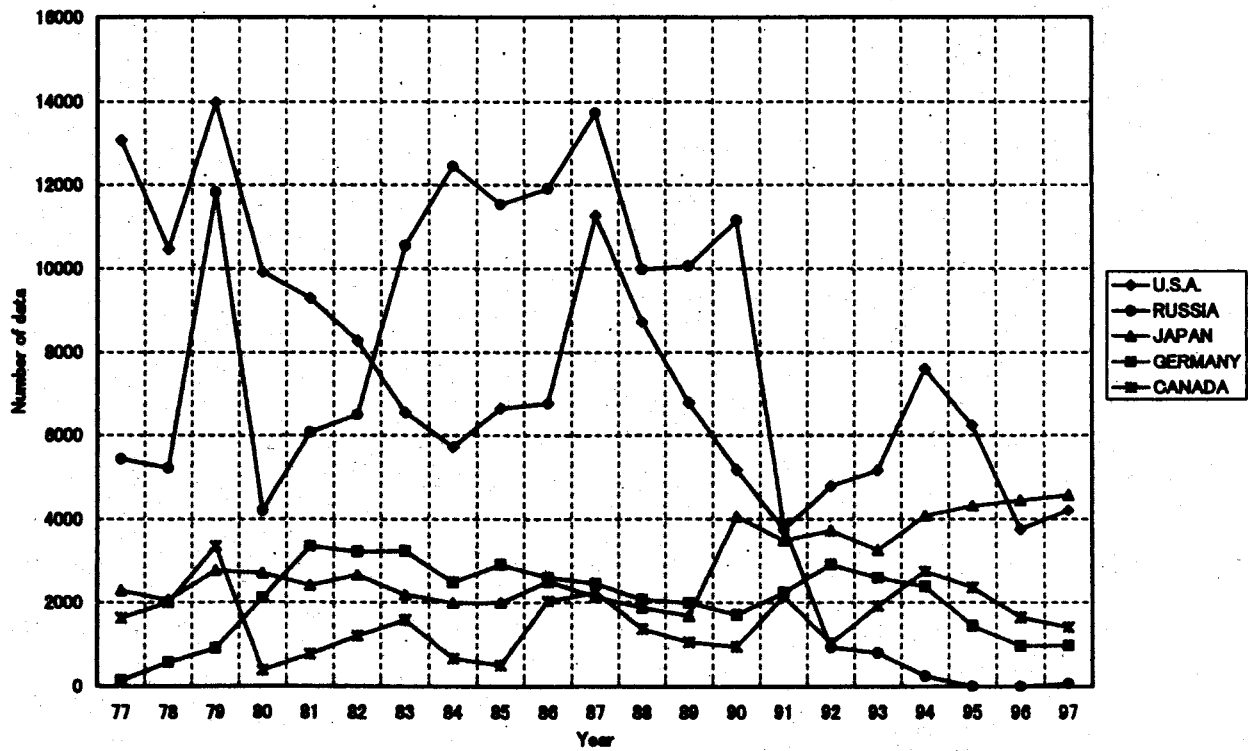


Table 4: Number of Data by Country

countries	1977-1989	1990	1991	1992	1993	1994	1995	1996	1997	TOTAL
ARGENTINA	288	11	0	0	0	0	64	42	68	473
ANTIGUA	0	0	0	0	0	350	0	0	0	350
AUSTRALIA	18,181	1,277	861	2,036	2,125	2,254	1,106	1,677	1,325	30,842
BAHAMAS	0	0	465	1,450	1,040	1,572	1,024	1,557	0	7,108
BELGIUM	10	0	0	0	0	0	0	0	0	10
BRAZIL	63	26	0	0	1	0	0	0	0	90
BULGARIA	173	0	0	0	0	0	0	0	0	173
CANADA	18,780	948	2,146	1,025	1,912	2,744	2,359	1,639	1,410	32,963
CHILE	245	45	65	13	32	148	0	1	5	554
CHINA	879	63	283	312	215	440	432	357	92	3,073
CONGO	0	0	0	0	0	0	0	1	0	1
COSTA RICA	93	0	0	0	0	0	0	6	9	108
CUBA	100	0	2	9	0	8	0	0	0	119
CYPRUS	0	0	0	0	95	72	205	226	0	598
DENMARK	2,366	620	250	245	384	404	217	197	0	4,683
DOMINICAN	16	0	0	0	0	0	0	0	0	16
ECUADOR	136	0	0	0	0	0	0	0	0	136
FIJI	0	0	0	257	100	0	0	0	0	357
FRANCE	12,468	2,326	476	1,797	1,674	2,558	785	1,134	1,145	24,363
GERMANY	28,011	1,704	2,237	2,913	2,587	2,377	1,440	954	963	43,186
ICELAND	934	22	1	139	245	286	96	26	0	1,749
INDIA	28	0	0	0	0	0	0	0	0	28
INDONESIA	2,745	1	20	247	319	360	185	36	0	3,913
ITALY	52	0	0	0	0	0	0	0	0	52
IVORY COAST	0	0	0	8	2	0	0	0	0	10
JAPAN	29,192	4,062	3,484	3,727	3,249	4,075	4,319	4,453	4,569	61,130
KOREA	382	0	0	2	0	0	0	0	0	384
KUWAIT	0	0	0	0	0	77	244	372	40	733
LIBERIA	7,857	1,101	1,219	2,493	2,254	3,257	2,554	1,959	279	22,973
LIBYA	0	0	0	0	0	59	92	168	0	319
MALTA	0	0	0	0	0	10	103	64	0	177
MEXICO	4	1	0	7	53	58	517	25	0	665
NETHERLANDS	4,962	1,254	788	1,021	516	967	1,081	596	737	11,922
NEW ZEALAND	110	15	10	10	2	41	8	1	0	197
NIGERIA	14	0	0	0	0	0	0	2	0	16
NORWAY	610	31	545	671	351	651	615	493	0	3,967
PAKISTAN	22	9	0	0	0	0	0	0	0	31
PANAMA	3,339	786	377	859	1,384	2,947	1,513	1,096	739	13,040
PERU	22	0	0	0	0	0	0	0	0	22
PHILIPPINES	237	2	0	0	0	0	382	7	403	1,031

countries	1977-1989	1990	1991	1992	1993	1994	1995	1996	1997	TOTAL
POLAND	160	0	1	0	0	0	0	0	0	161
PORTUGAL	360	19	2	14	2	0	0	3	3	403
ROMANIA	0	0	0	0	0	0	0	0	1	1
RUSSIA	119,450	11,144	3,843	923	794	243	0	0	73	136,470
SAUDI ARABIA	0	0	0	0	0	0	0	119	0	119
SINGAPORE	279	386	326	977	1,119	1,667	877	1,020	1,074	7,725
SOUTH AFRICA	0	0	0	0	0	0	0	72	171	243
SPAIN	76	8	1	4	1	2	0	0	0	92
SURINAM	0	0	0	0	0	0	0	2	0	2
SWEDEN	3,864	22	0	154	56	95	31	66	58	4,346
TONGA	0	0	246	0	0	15	16	0	31	308
U.K.	10,232	1,570	1,036	2,404	2,229	5,044	2,030	784	864	26,193
U.S.A.	117,416	5,171	3,743	4,781	5,167	7,593	6,231	3,751	4,204	158,057
URUGUAY	125	0	1	0	15	22	0	2	1	166
YUGOSLAVIA	13	0	0	0	0	0	0	0	0	13
UNKNOWN	44,171	5,515	6,650	15,932	29,970	32,507	32,647	29,167	38,006	234,565
TOTAL	428,465	38,139	29,078	44,430	57,893	72,903	61,173	52,075	56,270	840,426

2.3 RNODC-MARPOLMON

2.3.1 Activities

Major activities are as follows: --

- (1) Collection and management of four types of data, namely oil slick, tar ball, beach tar and hydrocarbon, since 1975.
- (2) The received data are digitized and forwarded to WDC in the IODE exchange format.

2.3.2 Data holdings

Data holdings are shown in the following tables and figures: --

- (1) Table 5: The number of archived data in 1995 which were provided by JMA (Japan Meteorological Agency) and JMSA (Japan Maritime Safety Agency).
- (2) Table 6: Data volume archived according to their types.
- (3) Fig. 6: The existence spots for oil slick data.
- (4) Fig. 7: The observation spots for tar ball data.
- (5) Fig. 8: The observation spots for beach tar data.
- (6) Fig. 9: The observation spots for hydrocarbon data.

Table 5: JODC Processed following data submitted JMA and JMSA in 1995.

	JMA	JMSA
Oil Slicks	1,221 points	0 points
Tar Ball	84 points	231 points
Beach Tar	0 points	559 points
Hydrocarbon	52 points	0 points

Table 6: JODC holds following data which were provided by WDC-A, JMA and JMSA

Oil Slicks	115,616 points	(1974-1994)
Tar Ball	12,070 points	(1973-1995)
Beach Tar	13,044 points	(1975-1995)
Hydrocarbon	5,441 points	(1974-1994)

Fig. 6: The existence spots for oil slick data

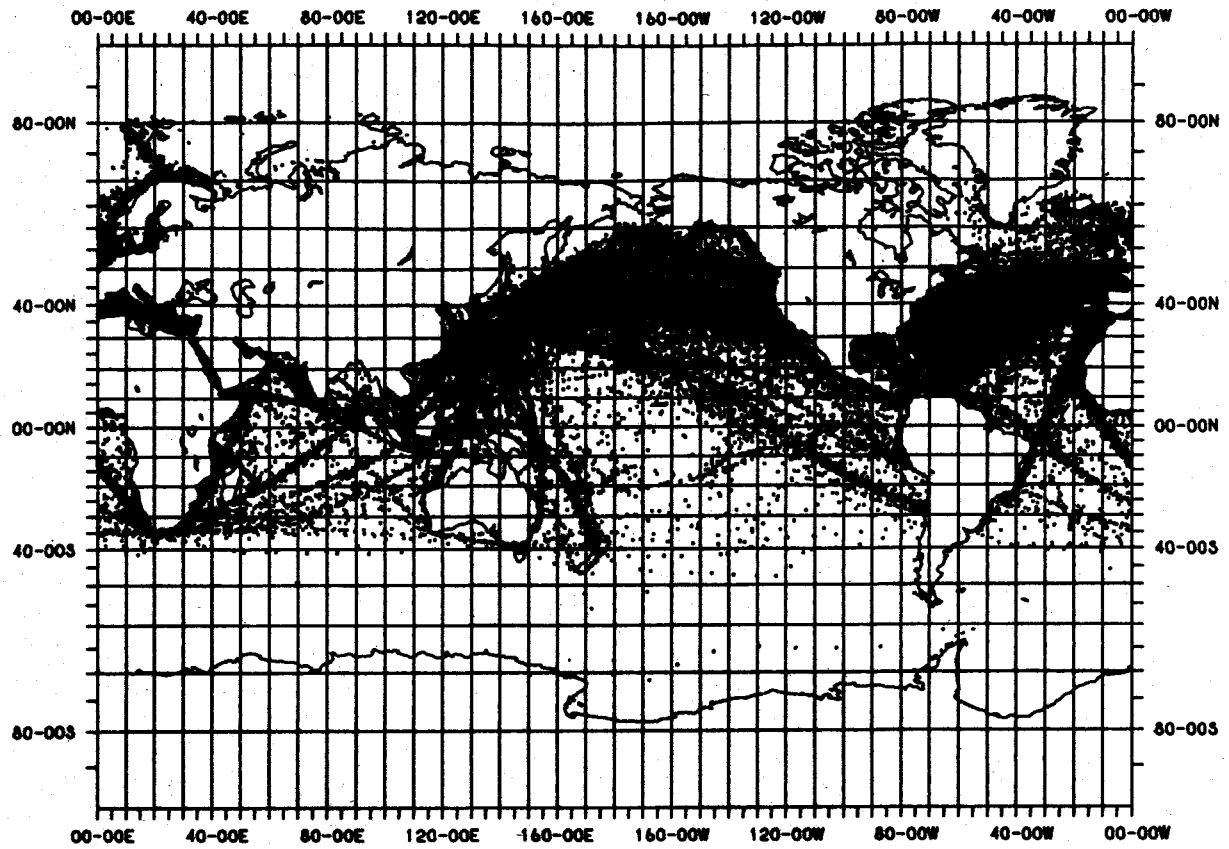


Fig. 7: The observation spots for tar ball data

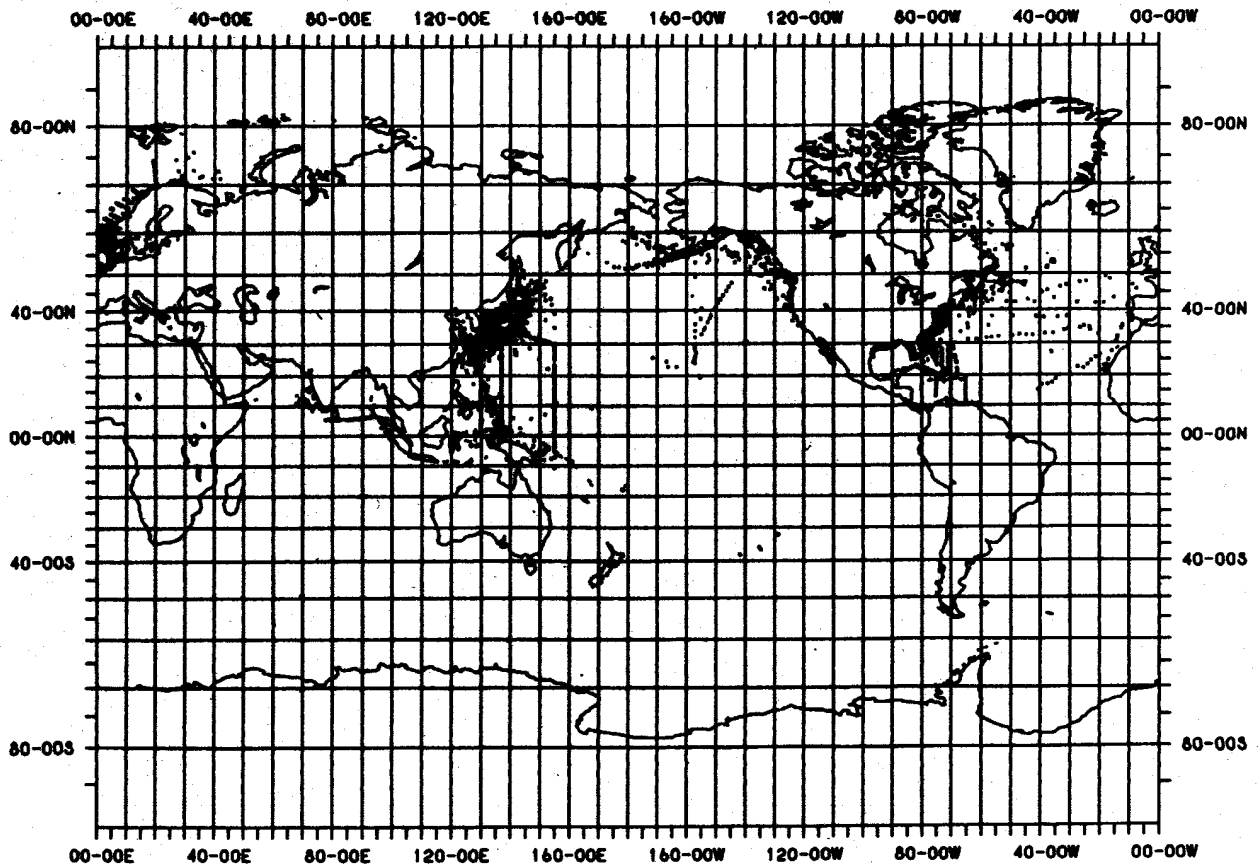


Fig. 8: The observation spots for beach tar data

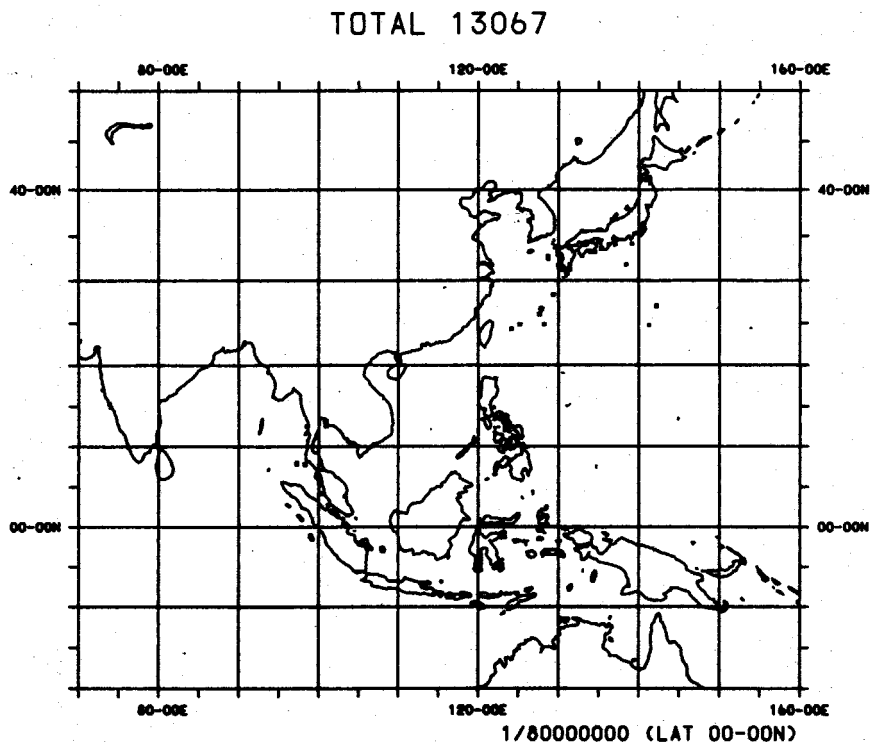
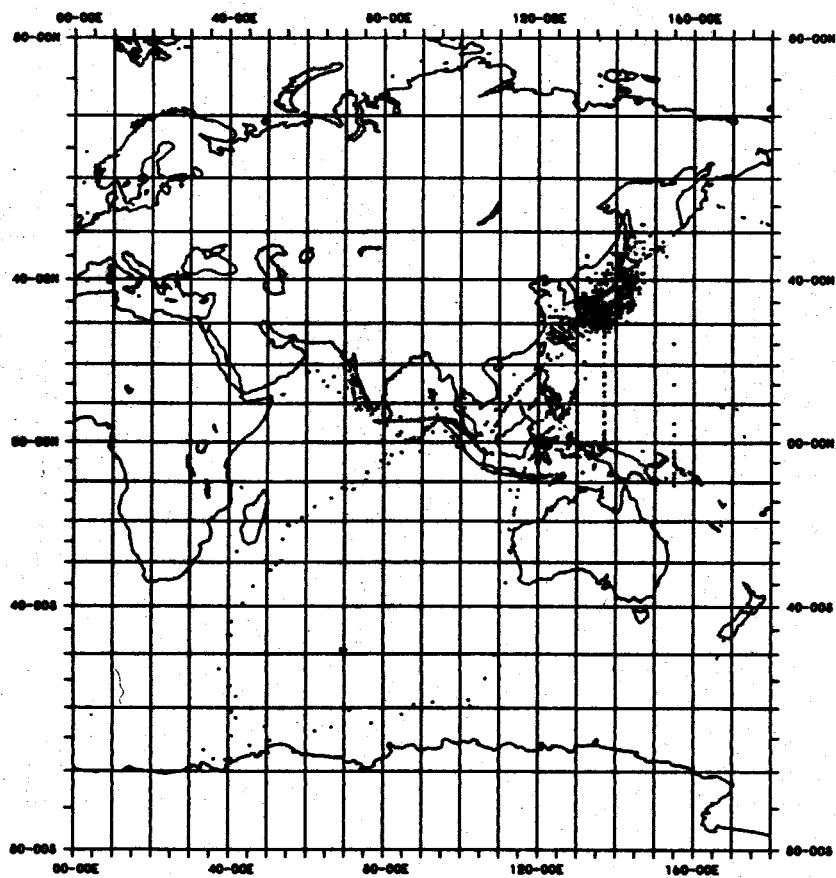


Fig. 9: The observation spots for hydrocarbon data



2.4 RNODC-ADCP (Acoustic Doppler Current Profiler)

2.4.1 Activities

Major activities are as follows: --

- (1) The collection and archive of data and development of the methodology of ADCP data management since 1991.
- (2) The operation of ADCP-DAC (Data Assembly Center) of WOCE (World Ocean Circulation Experiment) since 1995 on cooperated with Univ. of Hawaii.
- (3) The development and using of ADCP data management system on the data base of JODC.

2.4.2 Data holdings

Data holdings are shown by the following tables: --

- (1) Table 7: The number of archived data in 1997 by country.
- (2) Table 8: The inventory of data with provided by Univ. of Hawaii in 1997.

Table 7: ADCP Data received at JODC in 1997

Japan	:	437 Cruises
U.S.A	:	17 Cruises

Table 8: ADCP Inventories provided by Univ. of Hawaii in 1997

Ref	Start	End	Lat-min	Lng-min	Lat-max	Lng-max	Point	Layer
31850001	1985/6/15	1985/7/16	8-22-3S	142-52-33E	13-28-7N	155-3-22E	718	17
31860001	1986/1/12	1986/2/12	8-21-57S	142-57-49E	6-13-43N	157-0-1E	739	43
31860002	1986/11/16	1986/12/16	10-37-0S	118-9-57E	20-55-56N	165-29-21E	455	27
31870001	1987/9/20	1987/10/25	10-29-51S	118-11-34E	20-0-60N	166-53-35E	697	39
31870002	1987/1/29	1987/2/20	42-5-11S	15-31-35E	23-13-16S	52-12-44E	450	21
31970001	1997/1/5	1997/1/9	21-15-21N	158-18-55W	22-51-0N	157-54-3W	95	28
31970002	1997/2/15	1997/2/19	21-15-50N	158-17-59W	22-51-0N	157-53-59W	92	27
31970003	1997/3/9	1997/3/13	21-15-45N	158-19-9W	22-52-38N	157-52-41W	94	29
31970004	1997/2/3	1997/3/4	8-3-53S	117-5-51W	32-5-21N	94-50-35W	698	40
31970005	1997/4/6	1997/4/10	21-15-28N	158-19-33W	22-52-3N	157-54-3W	94	28
31970006	1997/3/25	1997/4/22	2-2-40S	157-57-37W	32-41-26N	117-12-50W	688	41
31970007	1997/5/4	1997/5/8	21-15-54N	158-19-18W	23-1-27N	157-53-40W	92	26
31970008	1997/6/1	1997/6/5	21-15-19N	158-30-20W	22-50-48N	157-54-1W	93	27
31970009	1997/1/10	1997/1/12	21-16-4N	158-19-32W	22-32-42N	157-57-33W	38	27
31970010	1997/5/11	1997/5/20	21-14-58N	158-19-33W	22-39-10N	156-56-42W	84	27
31970011	1997/6/25	1997/7/1	21-15-50N	158-23-52W	28-7-24N	155-20-50W	141	22
31970012	1997/7/6	1997/7/10	21-15-30N	158-19-18W	23-1-57N	157-53-58W	92	26