

# 海洋調査報告一覽

(CRUISE SUMMARY REPORT)

(国内海洋調査機関の調査報告)

1997年 実施分  
(1996年実施分を一部含む)

1998年3月

日本海洋データセンター

(海上保安庁水路部)

## まえがき

海洋の調査には多大な労力と時間、経費を要します。我々を取り巻く広大な海洋について一層の理解を深め、各種活動を行うためには、関係者がお互いに情報・データを交換することによって、作業の重複を避け、調査を効率的に進めることが必要です。また、ひとたび得られた調査データは共通の財産として、広く一般の利用に供されることが望ましいことです。

海洋調査報告一覧は、海洋データ交換を迅速・確実にを行い、かつ調査終了後データ公表までの空白を埋めるため、どこの機関が、いつ、どこで、どのような調査活動を行ったかを、国際的に統一された書式（航海概要報告）でデータ名、数量、海域、データ保管場所等の概要について記述した調査機関からの報告をとりまとめたものです。この調査目録が、データ流通の円滑化を通じて、海洋調査活動の効率化と海洋科学の進歩に寄与できれば幸いです。

1998年 3月

日本海洋データセンター  
所長 長井 俊夫

## 目 次

1. 航海概要報告 (CRUISE SUMMARY REPORT) について .....	1
2. 航海概要報告の項目説明 .....	2
3. データタイプのコードリスト .....	3
4. 調査航海一覧表 .....	4
5. 海洋調査報告 (航海概要報告) 一覧 .....	7

付 録 1 MSQ 海域番号図 (全世界、西太平洋) .....	付 1-1
付 録 2 記入要領 (書式つき) .....	付 2-1
付 録 3 調査機関略語表 .....	付 3-1

## 1. 航海概要報告 (CRUISE SUMMARY REPORT) について

この報告書式は、1991年1月のユネスコ政府間海洋学委員会 (IOC) 国際海洋データ・情報交換システム (IODE) 技術委員会第13回会議の決議に基づき、従来から使用してきた「海洋調査報告 (ROSCOP: 第2版)」に替わるもので我が国では1992年1月1日以降に終了した航海から使用しています。

航海概要報告は、海洋における観測成果の概要を記すための統一された書式で、海洋データの全世界にわたる収集目録であり、調査・研究者、計画立案者、データ管理者等にとって、誰が、いつ、どこで、どのような調査をしたかのタイムリーな情報についてアクセスを可能にするものです。

このグローバルな観測成果の概要は、世界データセンター (WDC) および各国の海洋データセンターを通じて、国際的プログラムの計画機関の調査担当者、計画立案者に利用されることとなります。このため、日本海洋データセンター (JODC) ではIOCおよび各国の海洋データセンターへは我が国の主要な海洋調査計画を、また世界データセンターへは各海洋調査実施機関に提出して頂いた航海概要報告を編集した、この「海洋調査報告一覧」を送付しています。

海洋データの迅速な収集と円滑な流通を図るため、海洋調査実施機関におかれましては海洋調査航海終了後は、速やかにJODCあて航海概要報告を送付くださるようお願いいたします。

なお、本調査報告一覧には1997年中にJODCが受領した1996年分も掲載しています。

また、インターネットを通じてJODCが保有する海洋データ・情報を検索・抽出できるシステム、J-DOSS (JODC Data Online Service System) でも本報告一覧と同じ情報を見ることができます。

国内外の各海洋調査機関より提出していただいたCSRは、受領次第 J-DOSS上へ登録されます。これにより、本報告一覧の刊行時期まで待つことなく常に新しい情報を見ることができるようになり、また、J-DOSS上では、国別、機関別、船名別、海域別等の条件での検索が可能です。

J-DOSS中のCSRのページのアドレスは <http://www.jodc.jhd.go.jp/cgi-bin/csr> です。

みなさんの、ご利用をお待ちしています。

## 2. 調査報告の項目説明

海洋調査報告一覧は、JODC で受領した航海概要報告（CSR）を整理、編集したもので、報告に使用されている各項目の概略は次のとおりです。

Reference No.	:	CSR情報のJODCにおける照会番号
Restrict Data	:	データ交換に制限がある（Yes）か、否（No）か条件付き（In part）かを示す
Ship Name	:	データを収集した船舶のフルネーム
Ship Type	:	データを収集した船舶の種類
Cruise No./Name	:	航海の固有番号、名称又は略称
Cruise Period	:	出港日と入港日
Port of Departure	:	出港した港の名称
Port of Return	:	帰港した港の名称
Responsible Laboratory	:	航海の観測計画を作成した調査機関の名称
Chief Scientist(s)	:	航海中観測調査を担当した者（観測班長）の名前と所属機関
General Ocean Area(s)	:	航海中にデータを収集した海洋または海域の名称
Specific Areas	:	調査が或る海域の特定区域に集中した場合、その区域のローカルな海域名、海底地名、または地理座標
Geographic Coverage	:	MSQ海域番号図による
Project Name	:	航海が共同プロジェクト（または調査、計画）の一部であるならば、その名称
Coordinating Body	:	上記プロジェクトの調整機関名
Principal Investigators	:	航海で収集されたデータについて責任を持っている筆頭の調査者

Objectives and Brief Narrative of Cruise : 航海の目的と性格についての情報

Moorings, Bottom Mounted Gear and Drifting Systems : 係留、海底設置機器、漂流機器システム

PI	:	Principal Investigators 欄を参照
LAT. LON.	:	観測地点の経緯度
Data Type	:	データリストのコード
Description	:	機器の種類、測定のパラメータ、機器数とその深度、設置または回収の日付と位置

Summary of Measurements and Samples Taken : 測定とサンプル採取の概要

PI	:	Principal Investigators 欄を参照
No Units	:	収集されたデータの量、または推定量
Data Type	:	データリストのコード
Description	:	データ、使用機器/装置の種類・特性等を記入

### 3. データタイプのコードリスト

航海概要報告の、「Moorings, Bottom Mounted Gear and Drifting Systems」、および「Summary of Measurements and Samples Taken」のなかのデータタイプは、下記のリストから記入します。

#### A : 海洋物理学

- H71 航走中表層測定
- H13 BT
- H09 各層観測
- H10 CTD
- H11 航走中表面下測定
- H72 サーミスタチェーン
- H16 透明度 (Transmissometerなど)
- H17 海洋光学 (水面下の照度など)
- H73 地球化学的トレーサー (フロロンなど)
- D01 流速計による観測
- D71 カレントプロファイラー (ADCPなど)
- D03 船の偏流による海流測定
- D04 GEK
- D05 漂流ブイ
- D06 中立ブイ
- D09 水位測定 (水圧計や底置型音響測深器含む)
- D72 機器による波浪観測
- D90 その他の海洋物理学観測

#### B : 海洋化学

- H21 溶存酸素
- H74 二酸化炭素
- H33 その他の溶存ガス
- H22 リン酸塩
- H23 全りん
- H24 硝酸塩
- H25 亜硝酸塩
- H75 全窒素
- H76 アンモニア
- H26 けい酸塩
- H27 アルカリ度
- H28 pH
- H30 微量元素
- H31 放射能
- H32 同位元素
- H90 その他の海洋化学観測

#### C : 汚染

- P01 懸濁物
- P02 微量金属
- P03 石油残渣
- P04 塩素化炭化水素
- P05 その他の溶存物質
- P12 海底沈殿物
- P13 汚染生物 (生物体内汚染物質)
- P90 その他の汚染観測

#### D : 生物学と漁業

- B01 基礎生産力
- B02 植物プランクトン色素
- B71 粒状有機物
- B06 溶存有機物
- B72 生化学測定 (脂質、アミノ酸)
- B73 セジメントトラップ
- B08 植物プランクトン
- B09 動物プランクトン
- B03 固形浮遊物 (セストン)
- B10 水表生物
- B11 遊泳動物
- B13 卵/稚仔
- B07 浮遊細菌/微生物
- B16 底生細菌/微生物
- B17 底生植物
- B18 底生動物
- B25 鳥類
- B26 哺乳類と爬虫類
- B14 浮魚
- B19 底魚
- B20 軟体生物
- B21 甲殻類
- B28 海洋生物による音響反射
- B37 標識放流
- B64 漁具測定
- B65 試験漁業
- B90 その他の生物学/漁業観測

#### E : 気象

- M01 高層気象観測
- M02 入射放射
- M05 臨時標準観測
- M06 定常標準観測
- M71 大気化学
- M90 その他の気象観測

#### F : 地質と地球物理

- G01 採泥 (曳航)
- G02 グラブ型採泥
- G03 岩石柱状資料採取
- G04 堆積物柱状資料採取
- G08 海底写真
- G71 海底現場観測
- G72 地球物理学観測 (海底まで)
- G73 音響測深 (シングルビーム)
- G74 音響測深 (マルチビーム)
- G24 サイドスキャンソナー
- G75 反射式音波探査 (シングルチャンネル)
- G76 反射式音波探査 (マルチチャンネル)
- G26 屈折式音波探査
- G27 重力測定
- G28 地磁気測定
- G90 その他の物質/地球物理観測

#### 4. 調査航海一覧表

担当機関 <sup>*1</sup>	船名	調査海域	航海期間	調査項目 <sup>*2</sup>	照会番号	ページ
HD, MSA	KAIYO	North Pacific Ocean	27/02/1996 - 04/03/1996	B, F	96060	7
HD, MSA	SHOYO	Japan Sea	31/05/1996 - 20/06/1996	B, C, F	96061	8
		North Pacific Ocean				
HD, MSA	SHOYO	Japan Sea	02/09/1996 - 22/09/1996	A, B, F	96062	9
		Sea of Okhotsk				
HD, MSA	KAIYO	North Pacific Ocean	05/11/1996 - 10/11/1996	B, F	96063	10
NMO, JMA	CHOFU MARU	East China Sea	19/11/1996 - 17/12/1996	A, B, D, E	96064	11
		Philippine Sea				
		Japan Sea				
MMO, JMA	SEIFU MARU	Japan Sea	22/11/1996 - 20/12/1996	A, B, D, E, F	96065	12
ORI, UT	HAKUHO MARU	East China Sea	17/10/1996 - 27/11/1996	A, B, E	96066	13
		Philippine Sea				
		North Pacific Ocean				
ORI, UT	TANSEI MARU	North Pacific Ocean	23/08/1996 - 30/08/1996	A, B, D	96067	15
ORI, UT	TANSEI MARU	North Pacific Ocean	02/09/1996 - 11/09/1996	A, B, D, F	96068	16
ORI, UT	TANSEI MARU	Philippine Sea	08/11/1996 - 17/11/1996	F	96069	17
HMO, JMA	KOFU MARU	North Pacific Ocean	09/10/1996 - 30/10/1996	A, B, C, D, E	96070	18
HMO, JMA	KOFU MARU	North Pacific Ocean	15/11/1996 - 17/12/1996	A, B, D, E	96071	19
HD, MSA	KAIYO	North Pacific Ocean	10/01/1996 - 29/01/1996	A	96072	20
		Philippine Sea				
HD, MSA	SHOYO	East China Sea	10/01/1996 - 08/02/1996	A, B	96073	20
		Philippine Sea				
HD, MSA	MEIYO	Philippine Sea	11/01/1996 - 03/02/1996	A	96074	21
HD, MSA	TAKUYO	East China Sea	16/02/1996 - 15/03/1996	A, B, F	96075	22
HD, MSA	TENYO	North Pacific Ocean	29/02/1996 - 11/03/1996	A	96076	23
HD, MSA	SHOYO	North Pacific Ocean	18/04/1996 - 07/05/1996	A, B	96077	23
		Philippine Sea				
HD, MSA	SHOYO	North Pacific Ocean	12/07/1996 - 10/08/1996	A, B	96078	24
		Philippine Sea				
HD, MSA	SHOYO	North Pacific Ocean	08/10/1996 - 13/10/1996	A	96079	26
HD, MSA	SHOYO	North Pacific Ocean	28/10/1996 - 12/11/1996	A, B	96080	26
		Philippine Sea				
NMO, JMA	CHOFU MARU	East China Sea	22/01/1996 - 08/03/1996	A, B, C, D, E, F	97001	27
		Philippine Sea				
CMD, JMA	RYOFU MARU	Philippine Sea	21/01/1997 - 25/02/1997	A, B, C, D, E, F	97002	28

\*1 末尾の付録3 参照

\*2 p3データタイプのコードリスト参照

担当機関 <sup>*1</sup>	船名	調査海域	航海期間	調査項目 <sup>*2</sup>	照会番号	ページ
CMD, JMA	KEIFU MARU	North Pacific Ocean Philippine Sea	22/01/1997 - 25/02/1997	A, B, C, E, F	97003	29
HMO, JMA	KOFU MARU	North Pacific Ocean	27/01/1997 - 04/03/1997	A, B, C, D, E	97004	30
KMO, JMA	SHUMPU MARU	Philippine Sea	22/01/1997 - 28/02/1997	A, B, C, D, E, F	97005	32
CMD, JMA	RYOFU MARU	North Pacific Ocean	23/04/1997 - 06/05/1997	A, B, C, D, E, F	97006	33
CMD, JMA	KEIFU MARU	Philippine Sea North Pacific Ocean	23/04/1997 - 30/04/1997	A, B, C, E, F	97007	33
KMO, JMA	SHUMPU MARU	Philippine Sea Inland Sea	24/04/1997 - 23/05/1997	A, B, C, D, E, F	97008	34
MMO, JMA	SEIFU MARU	Japan Sea	14/01/1997 - 27/02/1997	A, B, C, D, E, F	97009	35
MMO, JMA	SEIFU MARU	Japan Sea	25/04/1997 - 26/05/1997	A, B, C, D, E, F	97010	37
NU	KAKUYO MARU	East China Sea	24/05/1997 - 02/06/1997	A, C	97011	38
NU	KAKUYO MARU	East China Sea	24/06/1997 - 03/07/1997	D	97012	38
NU	KAKUYO MARU	Japan Sea	08/06/1997 - 21/06/1997	A, D	97013	39
HD, MSA	SHOYO	North Pacific Ocean Philippine Sea	04/06/1997 - 03/07/1997	A, B, F	97014	40
NMO, JMA	CHOFU MARU	East China Sea Philippine Sea	13/06/1997 - 02/08/1997	A, B, C, D, E, F	97015	41
HD, MSA	SHOYO	North Pacific Ocean	06/08/1997 - 25/08/1997	A, B, F	97016	42
CMD, JMA	RYOFU MARU	North Pacific Ocean	30/05/1997 - 22/07/1997	A, B, C, D, E	97017	44
HMO, JMA	KOFU MARU	North Pacific Ocean	28/04/1997 - 30/50/1997	A, B, C, D, E	97018	45
HMO, JMA	KOFU MARU	North Pacific Ocean	12/06/1997 - 04/07/1997	A, B, C, D, E	97019	46
HMO, JMA	KOFU MARU	North Pacific Ocean	14/07/1997 - 07/08/1997	A, B, C, D, E	97020	47
NU	KAKUYO MARU	North Pacific Ocean	12/07/1997 - 11/08/1997	A	97021	48
NU	KAKUYO MARU	North Pacific Ocean	20/08/1997 - 04/09/1997	A	97022	48
NU	NAGASAKI MARU	East China Sea	02/04/1997 - 22/04/1997	A, D	97023	49
NU	NAGASAKI MARU	East China Sea Yellow Sea	06/05/1997 - 05/06/1997	A, D, E	97024	50
MMO, JMA	SEIFU MARU	Japan Sea	25/06/1997 - 13/08/1997	A, B, C, D, E	97025	51
HD, MSA	SHOYO	North Pacific Ocean Japan Sea	01/09/1997 - 30/09/1997	A, B	97026	52
SFHS	WAKATORI MARU	North Pacific Ocean	15/05/1997 - 10/07/1997	A, B, D, E	97027	54
KMO, JMA	SHUMPU MARU	Philippine Sea North Pacific Ocean	26/06/1997 - 03/08/1997	A, B, C, D, E	97028	55
KMO, JMA	SHUMPU MARU	Philippine Sea	21/08/1997 - 09/09/1997	A, B, D, E, F	97029	56

\*1 末尾の付録3参照

\*2 p3データタイプのコードリスト参照



担当機関 <sup>*1</sup>	船名	調査海域	航海期間	調査項目 <sup>*2</sup>	照会番号	ページ
NMO, JMA	CHOFU MARU	East China Sea Philippine Sea	03/10/1997 - 31/10/1997	A, B, C, D, E	97030	57
HD, MSA	SHOYO	North Pacific Ocean Philippine Sea	14/07/1997 - 29/07/1997	A	97031	58
CMD, JMA	RYOFU MARU	North Pacific Ocean	12/09/1997 - 07/11/1997	A, B, C, D, E	97032	58
NMO, JMA	CHOFU MARU	East China Sea Philippine Sea	19/11/1997 - 16/12/1997	A, B, D, E	97033	60
HMO, JMA	KOFU MARU	North Pacific Ocean	08/10/1997 - 07/11/1997	A, B, C, D, E	97034	60
HMO, JMA	KOFU MARU	North Pacific Ocean	21/11/1997 - 11/12/1997	A, B, D, E	97035	62
HD, MSA	SHOYO	North Pacific Ocean Philippine Sea	25/11/1997 - 20/12/1997	A, B, F	97036	62
KMO, JMA	SHUMPU MARU	Philippine Sea	06/10/1997 - 13/11/1997	A, B, C, D, E	97037	63
NU	KAKUYO MARU	North Pacific Ocean South Pacific Ocean	24/10/1997 - 21/12/1997	A	97038	64
MMO, JMA	SEIFU MARU	Japan Sea	08/10/1997 - 05/11/1997	A, B, C, D, E, F	97039	65
MMO, JMA	SEIFU MARU	Japan Sea	21/11/1997 - 11/12/1997	A, B, D, E, F	97040	66

\*1 末尾の付録3参照

\*2 p3データタイプのコードリスト参照

## 5. 海洋調査報告 (航海概要報告) 一覽

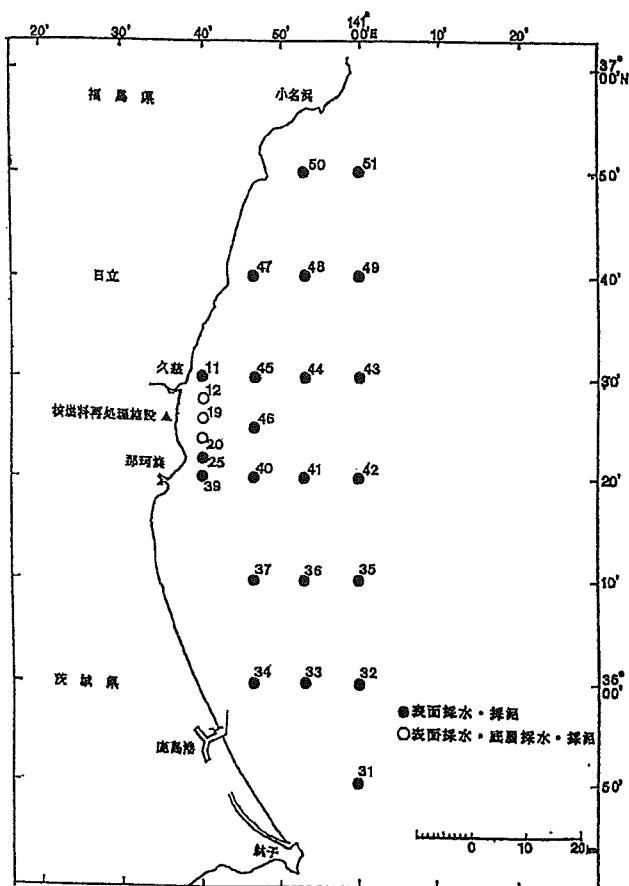
Reference No. : 96060  
 Restrict Data : Yes  
 Ship Name : KAIYO  
 Ship Type : Survey Vessel  
 Cruise No./Name :  
 Cruise Period : 27/02/1996 to 04/03/1996  
 Port of Departure : Tokyo  
 Port of Return : Onahama  
 Responsible Laboratory : Hydrographic Department, MSA Agency  
 Chief Scientist(s) : Mr. H. Okano Hydrographic Department, MSA  
 General Ocean Area(s) : North Pacific Ocean  
 Specific Areas : Off the coast of Joban  
 Geographic Coverage : 130  
 Principal Investigators :  
 A; Mr. K. Oda Hydrographic Department, MSA

### Objectives and Brief Narrative of Cruise :

As a part of marine environment monitoring, sea waters and bottom sediments were collected to grips the concentration levels of radioactive materials.

### Summary of Measurements and Samples Taken :

PI	NO	UNITS	DATA TYPE	DESCRIPTION
A	25	Samples	H31, G02	Surface sea waters (25 points) and Bottom sea waters (3 points) were collected by using a auto suction pump . And bottom sediments were collected by using a SM type sampler (11 points) or Kanna type sampler (14 points).



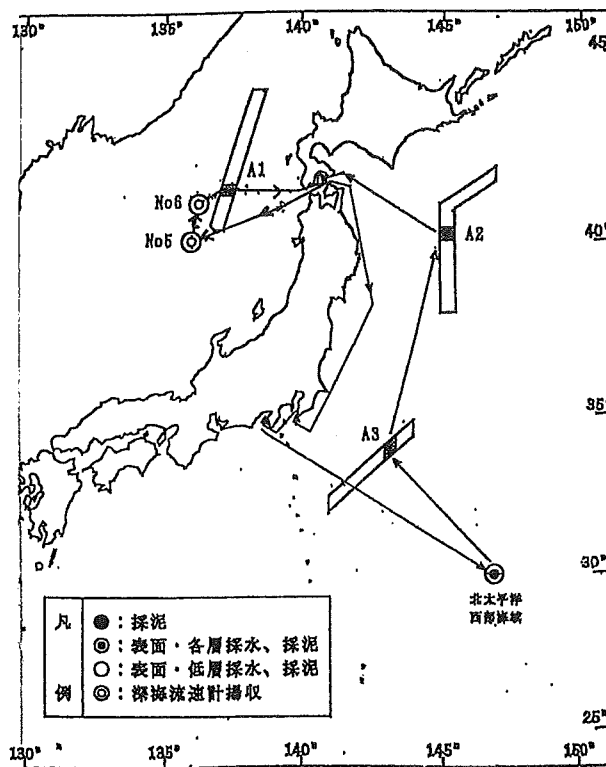
Reference No. : 96061  
 Restrict Data : Yes  
 Ship Name : SHOYO  
 Ship Type : Survey Vessel  
 Cruise No./Name :  
 Cruise Period : 31/05/1996 to 20/06/1996  
 Port of Departure : Tokyo  
 Port of Return : Tokyo  
 Responsible Laboratory : Hydrographic Department, MSA  
 Chief Scientist(s) : Mr. K. Iwamoto Hydrographic Department, MSA  
 General Ocean Area(s) : Japan Sea, North Pacific Ocean  
 Geographic Coverage : 131, 167  
 Principal Investigators :  
 A; Mr. K. Oda Hydrographic Department, MSA

**Objectives and Brief Narrative of Cruise :**

As a part of marine environmental monitoring, sea waters and bottom sediments were collected to grips the concentration levels of pollutants and radioactive materials.

**Summary of Measurements and Samples Taken :**

PI	NO	UNITS	DATA TYPE	DESCRIPTION
A	1	Sample	H31, G02	Surface sea waters were collected by using a auto suction pump. Sea waters in deep layers, by a 100l type sampler. Bottom sediments, by SM type sampler.
A	13	Samples	P02, P03, P04	Surface sea waters were collected by using a bucket. Sea waters in deep layers, by NISKIN sampler. Bottom sediments, by SM type sampler.



Reference No. : 96062  
 Restrict Data : Yes  
 Ship Name : SYOYO  
 Ship Type : Survey Vessel  
 Cruise No./Name :  
 Cruise Period : 02/09/1996 to 22/09/1996  
 Port of Departure : Tokyo  
 Port of Return : Tokyo  
 Responsible Laboratory : Hydrographic Department, MSA  
 Chief Scientist(s) : Mr. K. Oda Hydrographic Department, MSA  
 General Ocean Area(s) : Japan Sea, Sea of Okhotsk  
 Geographic Coverage : 131, 166, 167  
 Principal Investigators :  
 A; Mr. K. Oda Hydrographic Department, MSA

**Objectives and Brief Narrative of Cruise :**

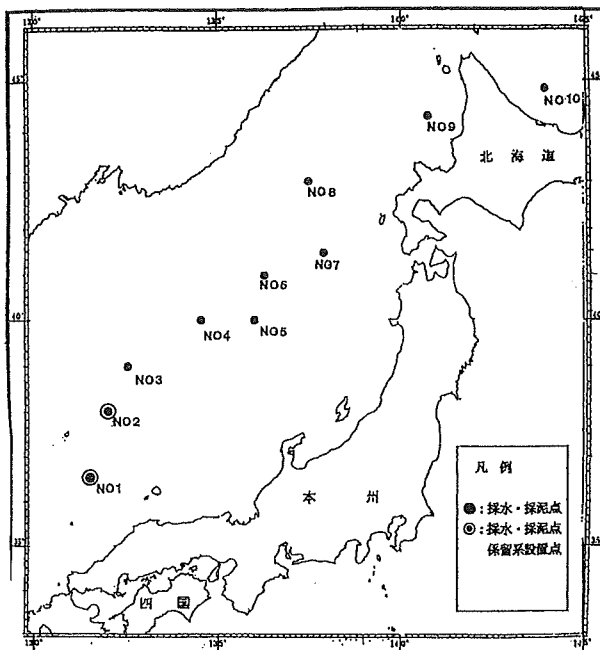
Sea waters and bottom sediments were collected at Japan Sea and Sea of Okhotsk for the radioactivity investigation. Deep sea current meters were set up in Japan Sea.

**Moorings, Bottom Mounted Gear and Drifting Systems :**

PI	LAT.	LON.	DATA TYPE	DESCRIPTION
A	38.00N 1	32.00E	D01	Using ACM at 1680,1630,1580m in depth.
A	36.35N 1	31.30E	D01	Using ACM at 2000,1950,1900m in depth.

**Summary of Measurements and Samples Taken :**

PI	NOU	NITS	DATA TYPE	DESCRIPTION
A	10	Samples	H31, G02	Surface sea waters were collected by using a auto suction pump . Sea waters of deep layers, by a 100l type sampler. Bottom sediments by SM type sampler.



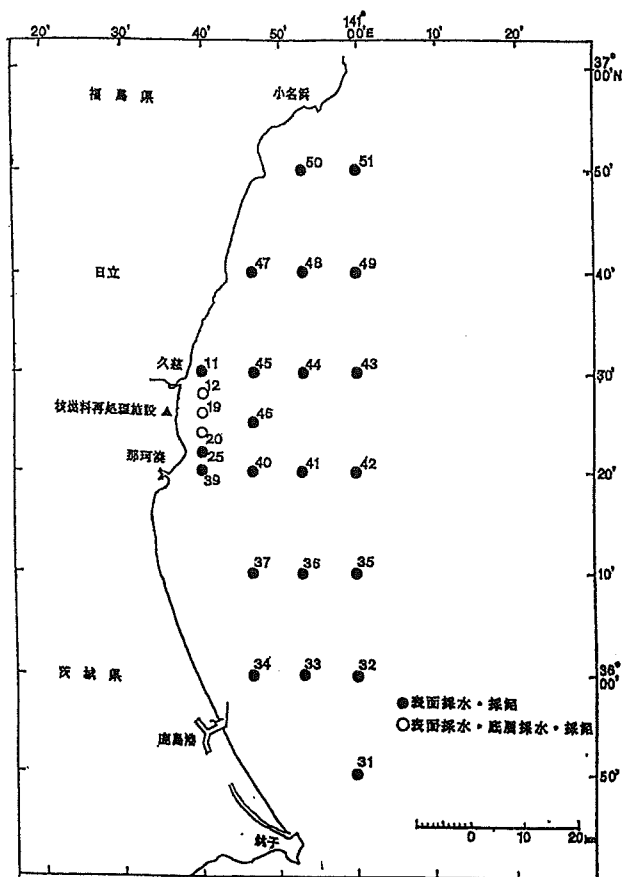
Reference No. : 96063  
 Restrict Data :  
 Ship Name : KAIYO  
 Ship Type : Survey Vessel  
 Cruise No./Name :  
 Cruise Period : 05/11/1996 to 10/11/1996  
 Port of Departure : Tokyo  
 Port of Return : Onahama  
 Responsible Laboratory : Hydrographic Department, MSA  
 Chief Scientist(s) : Mr. M. Mogi Hydrographic Department, MSA  
 General Ocean Area(s) : North Pacific Ocean  
 Specific Areas : Off the coast of Joban  
 Geographic Coverage : 130  
 Principal Investigators :  
 A; Mr. K. Oda Hydrographic Department, MSA

**Objectives and Brief Narrative of Cruise :**

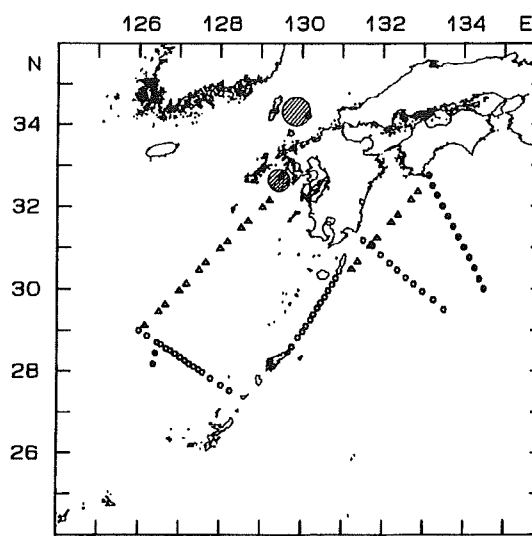
As a part of marine environmental monitoring, sea waters and bottom sediments were collected to grips the concentration levels of radioactive materials.

**Summary of Measurements and Samples Taken :**

PI	NO	UNITS	DATA TYPE	DESCRIPTION
A	25	Samples	H31, G02	Surface sea waters (25 points) and Bottom sea waters (3 points) were collected by using a auto suction pump . And bottom sediments were collected by using a SMtype sampler (11 points) or Kanna type sampler (14 points).



**Reference No. :** 96064  
**Restrict Data :** No  
**Ship Name :** CHOFU MARU  
**Ship Type :** Observation Ship  
**Cruise No./Name :** 96-11  
**Cruise Period :** 19/11/1996 to 17/12/1996  
**Port of Departure :** Nagasaki  
**Port of Return :** Nagasaki  
**Responsible Laboratory :** Nagasaki Marine Observatory, JMA  
**Chief Scientist(s) :** Mr. M. Iwamoto Nagasaki Marine Observatory, JMA  
**General Ocean Area(s) :** East China Sea, Philippine Sea, Japan Sea  
**Specific Areas :**  
**Geographic Coverage :** 95, 96, 131, 132  
**Project Name :** KER, WESTPAC, IGOSS  
**Coordinating Body :**  
**Principal Investigators :**  
 A; Mr. S. Wakai Nagasaki Marine Observatory, JMA  
 B; Mr. K. Kimura Nagasaki Marine Observatory, JMA  
 C; Mr. M. Iwamoto Nagasaki Marine Observatory, JMA  
 D; Mr. K. Ashimine Nagasaki Marine Observatory, JMA



○ Serial(CTD) Observation  
 ● BT Observation  
 △ Acoustic Doppler Current Meter Observation  
 ⊙ Fixed Station

**Objectives and Brief Narrative of Cruise :**

A seasonal oceanographical observation (physical, chemical and biology) in the East China Sea and Philippine Sea.

Oceanographical and maritime meteorological observations for the verification of buoy robot observation.

Main Tasks; The observations were carried out as follows at two fixed ocean station.

1. General maritime meteorological observation.
2. Aerological observation.
3. Ocean wave observation.
4. Net flux of radiation and solar radiation observation.
5. Surface temperature and current observations.

**Summary of Measurements and Samples Taken :**

PI	NO	UNITS	DATA TYPE	DESCRIPTION
A	38	Stations	H10	Using Neil-Brown MK-3B CTD.
A	23	Days	H11	Using TSURUMI-SEIKI co., thermosalinograph.
A	23	Days	D71	Using FURUNO co., ADCM.
A	17	Drops	H13	XBT Drops with T6 type probes.
B	14	Stations	H21, H22 H24, H25	Using Rosette sampler.
C	14	Stations	B02	Using Rosette sampler.
D	23	Days	M06	Using cylindrical resonator digital barometer, platinum resistance thermometer, Lithium chloride dew-point hygrometer and Wind vane and fan-anemograph.
D	23	Times	M01	Automated shipboard aerological observation system by VAISALA.
D	37	Stations	D72	Tucker wavemeter.

Reference No. : 96065  
 Restrict Data : No  
 Ship Name : SEIFU MARU  
 Ship Type : Research Vessel  
 Cruise No./Name : 96-11  
 Cruise Period : 22/11/1996 to 20/12/1996  
 Port of Departure : Maizuru  
 Port of Return : Maizuru  
 Responsible Laboratory : Maizuru Marine Observatory, JMA  
 Chief Scientist(s) : Mr. T. Segawa Maizuru Marine Observatory, JMA  
 General Ocean Area(s) : Japan Sea  
 Specific Areas :  
 Geographic Coverage : 131, 167  
 Principal Investigators :  
 A; Mr. T. Segawa Maizuru Marine Observatory, JMA  
 B; Mr. N. Nagai Maizuru Marine Observatory, JMA

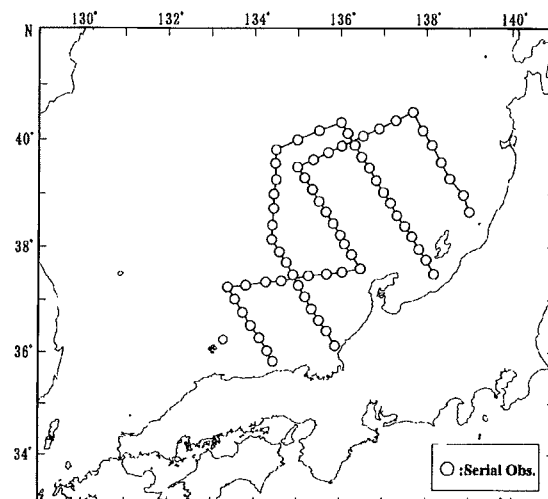
**Objectives and Brief Narrative of Cruise :**

Seasonal observation of marine condition.

Main task

1. Hydrographic observation (physical, chemical and biological).
2. Inspection of ocean data buoy.

**Summary of Measurements and Samples Taken :**



PI	NO	UNITS	DATA TYPE	DESCRIPTION
A	1900	N. Miles	H11	Measurements of near-surface temperature and salinity with a thermosalinograph (F.S.I).
A, B	17	Stations	H09, H21, H22 H24, H25, B02	Using Neil-Brown CTD with Rosette Sampler System.
A	51	Stations	H10	Using Neil-Brown CTD.
A	22	Stations	H16	Using Secchi Disk.
A	1900	N. Miles	D71	Using Acoustic Current Meter (FURUNO).
A	126	Stations	D72	Using Microwave or Tucker wave gauge.
B	3	Stations	H28	Using Neil-Brown CTD with Rosette Sampler System.
B	9	Stations	B08	Surface water sampling.
B	9	Stations	B09	Collected by Norpac Net.
A	9	Ascents	M01	Using VAISALA Digcoda MW2 System and VASALA RS80-15N Radio Sondes.
A	126	Stations	M06	According to WMO International Codes.
A	68	Stations	G73	Using echo sounder (KAIJO).

*Reference No. :* 96066  
*Restrict Data :* No  
*Ship Name :* HAKUHO MARU  
*Ship Type :* Research Vessel  
*Cruise No./Name :* KH-96-4  
*Cruise Period :* 17/10/1996 to 27/11/1996  
*Port of Departure :* Tokyo  
*Port of Return :* Tokyo  
*Responsible Laboratory :* Ocean Research Institute, The University of Tokyo  
*Chief Scientist(s) :* Dr. M. Kawabe Ocean Research Institute, The University of Tokyo  
*General Ocean Area(s) :* East China Sea, Philippine Sea, North Pacific Ocean  
*Geographic Coverage :* 95, 96, 130, 131  
*Principal Investigators :*  
 A; Dr. M. Kawabe Ocean Research Institute, The University of Tokyo  
 B; Dr. H. Nakamura Faculty of Fisheries, Kagoshima University  
 C; Dr. T. Takeuchi University of Electro-Communications  
 D; Dr. K. Ohwada Ocean Research Institute, The University of Tokyo  
 E; Dr. N. Iwasaki The Tokyo University  
 F; Dr. K. Taira Ocean Research Institute, The University of Tokyo

**Objectives and Brief Narrative of Cruise :**

The main objective is to study the hydrographic and dynamic characteristics of the Kuroshio (Leg 1) and the deep currents east of Japan (Leg 2).

In Leg 1, we made 116 deep CTDO2 casts along 10 sections and ship-mounted ADCP observation in the area from the East China Sea to the Kuroshio Extension Region to estimate the spatial variation of transport, vorticity, etc.

In Leg 2, we made 23 deep CTDO2 casts along 38N and 148E sections.

In addition to ship-mounted ADCP, we deployed 5 mooring systems with 12 current meters along 38N to show the current structure and absolute transport across the sections.

**Moorings, Bottom Mounted Gear and Drifting Systems :**

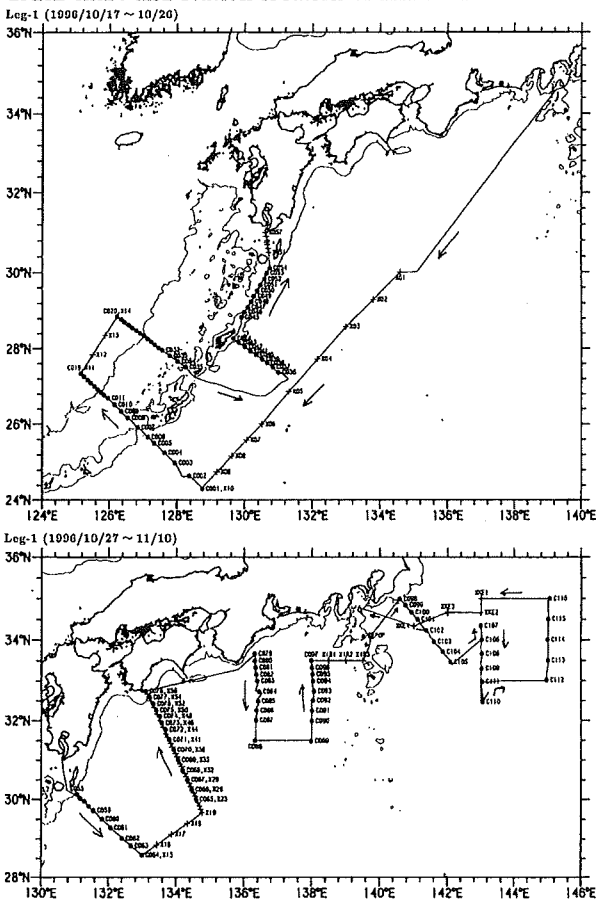
PI	LAT.	LON.	DATA TYPE	DESCRIPTION
C	34.06N	139.45E	D01, D90	Deployed and recovered 1 current meter (870m) and 1 pop-up XBT launcher (850m), Nov. 4 and Nov. 17, 1996.
F	34.03N	139.49E	D01, D90	Recovered 1 current meter (1088m) and 1 inverted echo sounder (1108m), Nov. 17, 1996.
F	34.04N	139.55E	D01, D90	Recovered 1 current meter (1164m) and 1 inverted echo sounder (1184m), Nov. 17, 1996.
F	33.59N	139.54E	D01, D90	Recovered 1 current meter (1147m) and 1 inverted echo sounder (1167m), Nov. 17, 1996.
F	34.00N	140.00E	D01, D90	Recovered 1 current meter (1062m) and 1 inverted echo sounder (1082m), Nov. 17, 1996.
F	33.55N	139.59E	D01, D90	Recovered 1 current meter (745m) and 1 inverted echo sounder (765m), Nov. 17, 1996.
A	33.58N	141.21E	D01	Recovered 3 current meters (3904, 5504, 5904m) , Nov. 18, 1996.
A	33.57N	142.32E	D01	Recovered 3 current meters (3246, 4846, 6046m) , Nov. 18, 1996.
A	38.00N	143.30E	D01	Deployed 2 current meters (4209, 3809m) , Nov. 19, 1996.
A	38.02N	143.50E	D01	Deployed 3 current meters (3870, 4670, 5470m) , Nov. 20, 1996.
A	38.00N	144.30E	D01	Deployed 2 current meters (4209, 3809m) , Nov. 20, 1996.
A, D	38.01N	145.32E	D01, B16	Deployed 3 current meters (3265, 4065, 4865m) and 1 microbial incubator, Nov. 21, 1996.
A	38.00N	146.25E	D01	Deployed 2 current meters (4166, 4966m) , Nov. 23, 1996.



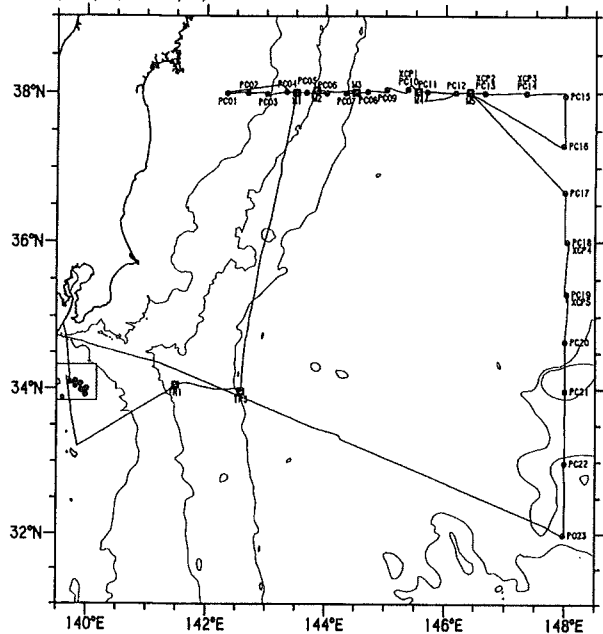
Summary of Measurements and Samples Taken :

PI	NO	UNITS	DATA TYPE	DESCRIPTION
A	146	Stations	H10	Deep casts using Seabird CTDO2 system.
A	74	Stations	H09, H21	Measurement of salinity and dissolved oxygen using Niskin bottles (mostly 24 bottles and surface bucket sample for each station).
B	56	Drops	H13	XBT drops with Sparton XBT-7 (station X001 X056).
A	15	Drops	H13	XBT drops with Sparton XBT-7 (the other stations).
A	6500	Miles	D71	Current velocity measurement at 20, 50, and 100m depth using a ship-mounted ADCP (FURUNO)
A	6500	Miles	D71	Current velocity measurement at 64 levels (32m thickness) above 1000m depth using a ship-mounted ADCP (RD 38kHz broadband).
A	6500	Miles	H71	Continuous measurement of surface water temperature and salinity by intake.
A	6500	Miles	M06	Continuous measurement of meteorological parameters such as air temperature, humidity, surface wind.
E	6500	Miles	M02	Continuous measurement of radiations.

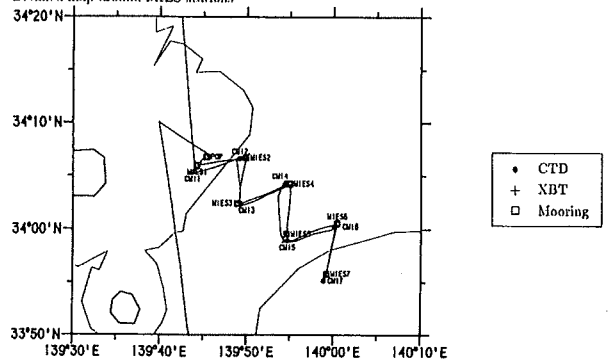
Track chart and station location of KH-96-4



Leg-2 (1996/11/16 ~ 11/27)

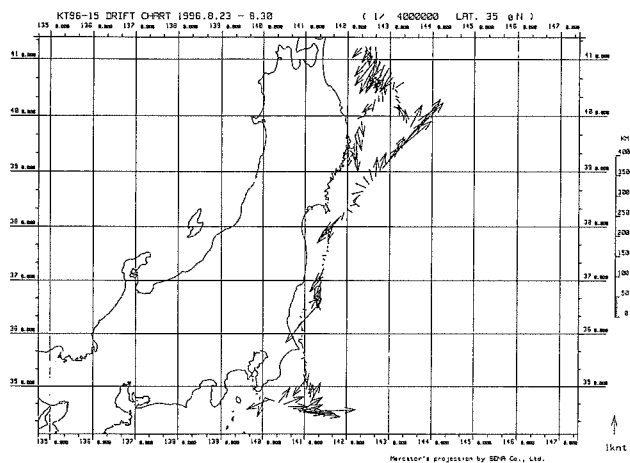
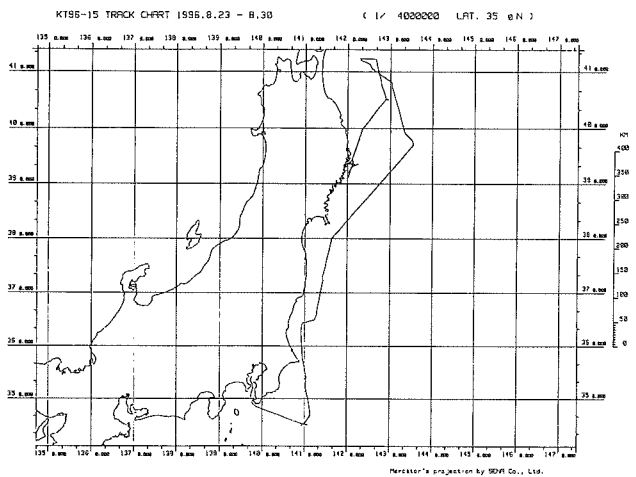


Detailed map around MIES stations



Reference No. : 96067  
 Restrict Data : Yes  
 Ship Name : TANSEI MARU  
 Ship Type : Research Vessel  
 Cruise No./Name : KT96-5  
 Cruise Period : 23/08/1996 to 30/08/1996  
 Port of Departure : Tokyo  
 Port of Return : Otsuchi  
 Responsible Laboratory : Ocean Research Institute, The University of Tokyo  
 Chief Scientist(s) : Dr. A. Taniguchi Ocean Research Institute, The University of Tokyo  
 General Ocean Area(s) : North Pacific Ocean  
 Specific Areas : Northeast of Honshu  
 Geographic Coverage : 130  
 Principal Investigators :

A; Dr. A. Taniguchi Faculty of Agriculture, Tohoku University  
 B; Dr. J. Nishikawa Ocean Research Institute, The University of Tokyo  
 C; Dr. A. Kusaka Ocean Research Institute, The University of Tokyo



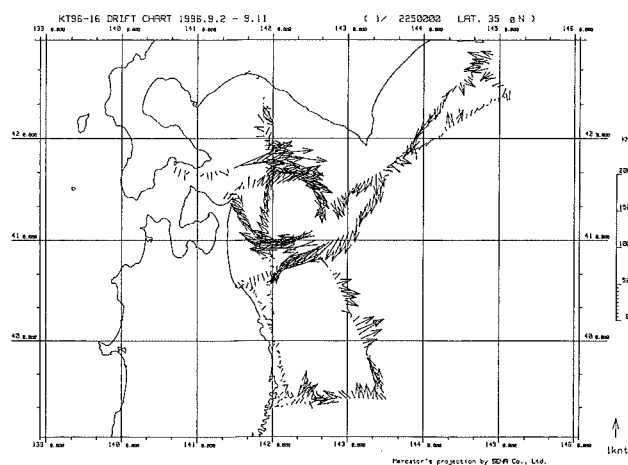
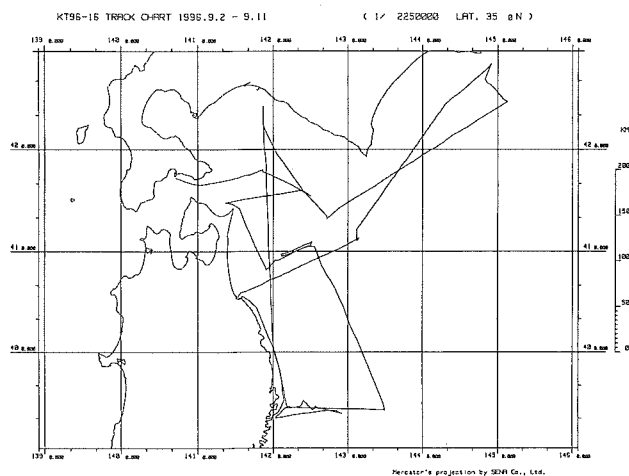
**Objectives and Brief Narrative of Cruise :**

- Study on seasonal change of Micronecton and mesopelagic food web.
- Study on plankton of Sanriku waters.
- Ecological study on onarine mammals off Sanriku.
- Study on lower trophic level structure off Joban.

**Summary of Measurements and Samples Taken :**

PL	NO	UNITS	DATA TYPE	DESCRIPTION
A	1	Station	H10, H09	Casting CTD-RMS.
A	10	Stations	B09, B14	Horizontal tow with ORI net.
A	3	Samples	B09, B14, B21	Tow with IKMT.
A	4	Samples	B09, B14, B21	Oblique tow with ORI net.
A	4	Samples	B09, B14, B21	Simultaneous horizontal tow with MTD nets.
B	1	Sample	B09, B08	Vertical haul with NORPAC twin nets.
B	11	Samples	B09	Oblique tow with ORI net.
B	9	Stations	H09, H22, H25 H10, H76, H26	Casting CTD-RMS.
C	7	Stations	H09, H10 B01, B02	Casting CTD-RMS.
C	7	Samples	B01, B08	Vertical haul with NORPAC twin nets.
C	7	Stations	B01	Casting CHLOROTEC.

Reference No. : 96068  
 Restrict Data : No  
 Ship Name : TANSEI MARU  
 Ship Type : Research Vessel  
 Cruise No./Name : KT-96-16  
 Cruise Period : 02/09/1996 to 11/09/1996  
 Port of Departure : Otsuchi  
 Port of Return : Hakodate  
 Responsible Laboratory : Ocean Research Institute, The University of Tokyo  
 Chief Scientist(s) : Prof. S. Ohta Ocean Research Institute, The University of Tokyo  
 General Ocean Area(s) : North Pacific Ocean  
 Specific Areas : South of Hokkaido, East of Sanriku  
 Geographic Coverage : 130, 166  
 Principal Investigators :  
 A; Prof. S. Ohta Ocean Research Institute, The University of Tokyo  
 B; Prof. M. Minagawa Hokkaido University



#### Objectives and Brief Narrative of Cruise :

1. Ecological and zoogeographical studies of deep-sea benthic organisms around Japan, especially in the Northwestern Pacific region.
2. Molecular phylogeny of deep-sea benthos.
3. Observations of deep-sea benthos by means of deep-sea photography.
4. Geochemical analysis of sediments and water in the Northwestern Pacific, with special reference to the transport and circulation of chemical tracer substances.
5. Microbiological studies of the Oyasio waters.

#### Moorings, Bottom Mounted Gear and Drifting Systems :

PI	LAT.	LON.	DATA TYPE	DESCRIPTION
A	36.26N	142.10E	G08, D01	Bottom-moored time-lapse camera (with bottom current meter) covering 12 hours at the depth of 400m.
A	41.04N	142.30E	G08, D01	I bid. Covering 12 hours, at the depth of 1500m.

#### Summary of Measurements and Samples Taken :

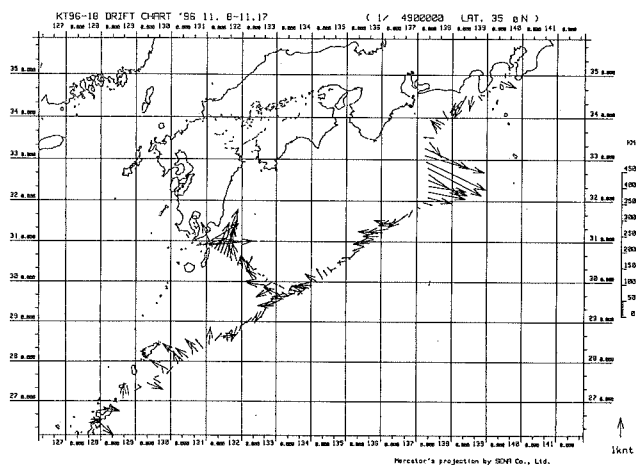
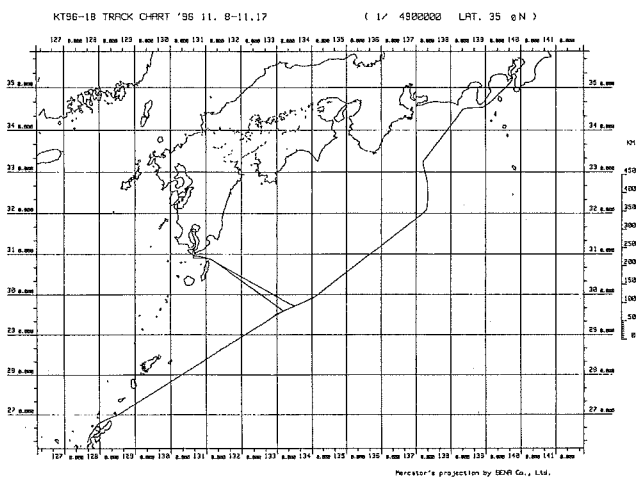
PI	NO	UNITS	DATA TYPE	DESCRIPTION
A	15	Stations	B18	Trawl and dredge catches of deep-sea benthos covering 100-1500m deep. Community structure, distribution study, taxonomy, gene and analysis.
A	2	Stations	B18, G04	Undisturbed bottom sediment cores for the analysis of meiobenthos and the analysis of bottom environments.

B	13	Stations	G04	Short, undisturbed sediment cores collected by multiple-corer covering the depth range of 66-2100m, to be used for the geochemical analyses.
B	3	Stations	G04	Long piston core samples at the depth of around 2000m to be used for the geochemical analyses.
B	2	Stations	H30, H31, H32	Series of hydrocasts to be used for the geochemical analyses.
B	2	Stations	H10	
B	4	Stations	B08, B09	2 pairs (phytoplankton & zooplankton) of NORPAC Net vertical hauls to be used for the analysis of dominant plankton.

**Reference No. :** 96069  
**Restrict Data :** In Part  
**Ship Name :** TANSEI MARU  
**Ship Type :** Research Vessel  
**Cruise No./Name :** KT-96-18  
**Cruise Period :** 08/11/1996 to 17/11/1996  
**Port of Departure :** Tokyo  
**Port of Return :** Naha  
**Responsible Laboratory :** Ocean Research Institute, The University of Tokyo  
**Chief Scientist(s) :** Mr. K. Suyehiro Ocean Research Institute, The University of Tokyo  
**General Ocean Area(s) :** Philippine Sea  
**Specific Areas :** Kyusyu Palau Ridge at 29-30N, South of Kagoshima Bay  
**Geographic Coverage :** 95  
**Project Name :** WESTPAC, ODP  
**Coordinating Body :** IOC, ORI  
**Principal Investigators :**  
 A; Mr. K. Suyehiro Ocean Research Institute, The University of Tokyo  
 B; Mr. N. Seama Chiba University  
 C; Mr. N. Edwards University of Toronto

**Objectives and Brief Narrative of Cruise :**

1. To study the crustal structure of the Kyushu-Palau ridge which was parted from the Izu-Ogasawara ARC as the Sikoku basin was formed.
2. To study the detailed magnetic structure of the Kyushu-Palau ridge crust.
3. To test a seafloor electromagnetic observation system for imaging shallow crustal structure.



**Moorings, Bottom Mounted Gear and Drifting Systems :**

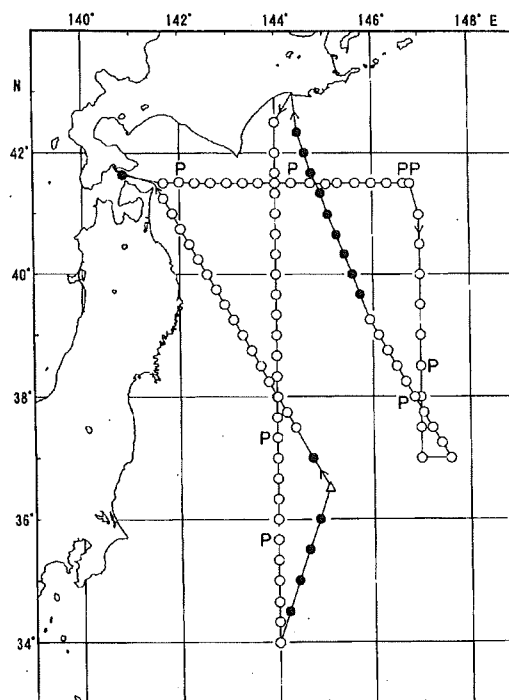
PI	LAT.	LON.	DATA TYPE	DESCRIPTION
A	29.32N	133.04E	G71	OBS(3-component geophones) Deployed Nov. 10 Recovered Nov. 15.
A	29.36N	133.13E	G71	OBS(3-component geophones) Deployed Nov. 10 Recovered Nov. 15.
A	29.39N	133.21E	G71	OBS(3-component geophones) Deployed Nov. 10 Recovered Nov. 15.
A	29.42N	133.30E	G71	OBS(3-component geophones) Deployed Nov. 10 Recovered Nov. 15.
A	29.46N	133.38E	G71	OBS(3-component geophones) Deployed Nov. 10 Recovered Nov. 15.
A	29.49N	133.4E	G71	OBS(3-component geophones) Deployed Nov. 10 Recovered Nov. 15.
A	29.52N	133.55E	G71	OBS(3-component geophones) Deployed Nov. 10, Recovered Nov. 15.
A	29.55N	134.04E	G71	OBS(3-component geophones) Deployed Nov. 10 Recovered Nov. 15.
C	31.05N	130.29E	G71	OBE Deployed Nov. 13 Recovered Nov. 14.
B	29.50N	134.00E	G71	3-Component deep tow Magnetometer 500m Nov. 15.
B	28.37N	131.25E	G71	3-Component deep tow Magnetometer 2000m Nov. 16.

**Reference No. :** 96070  
**Restrict Data :** No  
**Ship Name :** KOFU MARU  
**Ship Type :** Research Vessel  
**Cruise No./Name :** 96-10  
**Cruise Period :** 09/10/1996 to 30/10/1996  
**Port of Departure :** Hakodate  
**Port of Return :** Hakodate  
**Responsible Laboratory :** Hakodate Marine Observatory, JMA  
**Chief Scientist(s) :** C. Nagai Hakodate Marine Observatory, JMA  
**General Ocean Area(s) :** North Pacific Ocean  
**Geographic Coverage :** 130, 166  
**Project Name :** IGOSS, WESTPAC, MARPOLMON  
**Coordinating Body :** WMO, IOC  
**Principal Investigators :**

A;	Oceanographical Division	Hakodate Marine Observatory, JMA
B;	Marine Meteorological Division	Hakodate Marine Observatory, JMA
C;	Pollutants Chemical Analysis Center	Climate and Marine Department, JMA

**Objectives and Brief Narrative of Cruise :**

1. Regular observation of oceanography and marine meteorology.
2. Background marine pollution monitoring.



Track Chart of KOFU MARU 9 Oct. ~ 30 Oct., 1996

○ CTD & ACM Obs.  
 ● BT & ACM Obs.  
 △ ACM Obs.  
 P Pollution Obs.

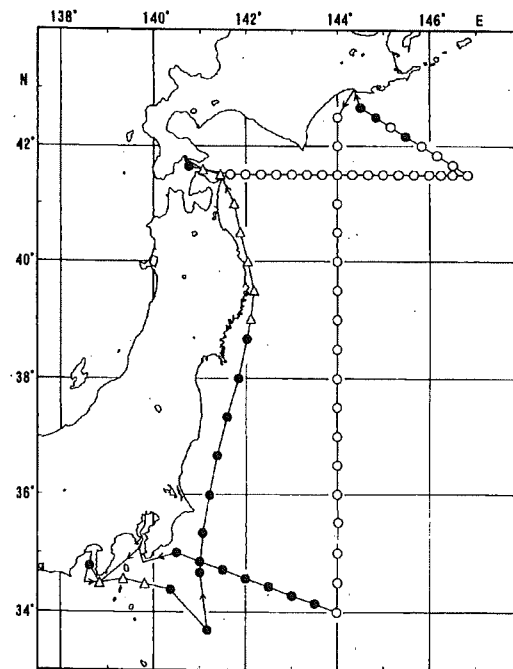
**Summary of Measurements and Samples Taken :**

PI	NO	UNITS	DATA TYPE	DESCRIPTION
A	2193	NM	H71	Continuous sea surface temperature & salinity recording.
A	78	Stations	H10	Using Neil-Brown CTD.
A	21	Stations	B02, H09, H21 H22, H24, H25	Using Neil-Brown CTD with Rosette sampler.
A	33	Stations	H16	Using Secchi disk (Daytime only).
A	15	Drop	H13	XBT drops with T6 type probes.
A	94	Stations	D71	Using FURUNO Co. Acoustic Current Meter at 0, 50, 100m in depth.
A	10	Stations	H28	Using Neil-Brown CTD with Rosette sampler.
A	10	Stations	B08	Using bucket.
A	6	Stations	B09	Using NORPAC net.
B	98	Times	M06	Observed every three hours.
B	16	Times	M01	Using VAISALA system.
B	98	Times	D72	Using micro-wave & Tucker wave gauge.
C	2	Samples	P02	Sampling for analysis of heavy metals.
C	2	Samples	P03	Using Neuston net.
C	2193	NM	P90	Floating pollutants observed visually (Daytime only).

**Reference No. :** 96071  
**Restrict Data :** No  
**Ship Name :** KOFU MARU  
**Ship Type :** Research Vessel  
**Cruise No./Name :** 96-11  
**Cruise Period :** 15/11/1996 to 17/12/1996  
**Port of Departure :** Hakodate  
**Port of Return :** Hakodate  
**Responsible Laboratory :** Hakodate Marine Observatory, JMA  
**Chief Scientist(s) :** Mr. T. Iwao Hakodate Marine Observatory, JMA  
**General Ocean Area(s) :** North Pacific Ocean  
**Geographic Coverage :** 130, 131, 166  
**Project Name :** IGOSS, WESTPAC  
**Coordinating Body :** WMO, IOC

**Principal Investigators :**

A; Oceanographical Division	Hakodate Marine Observatory, JMA
B; Marine Meteorological Division	Hakodate Marine Observatory, JMA



Track Chart of KOFU MARU 15 Nov. ~ 17 Dec., 1996  
 ○ CTD & ACM Obs.  
 ● BT & ACM Obs.

**Objectives and Brief Narrative of Cruise :**

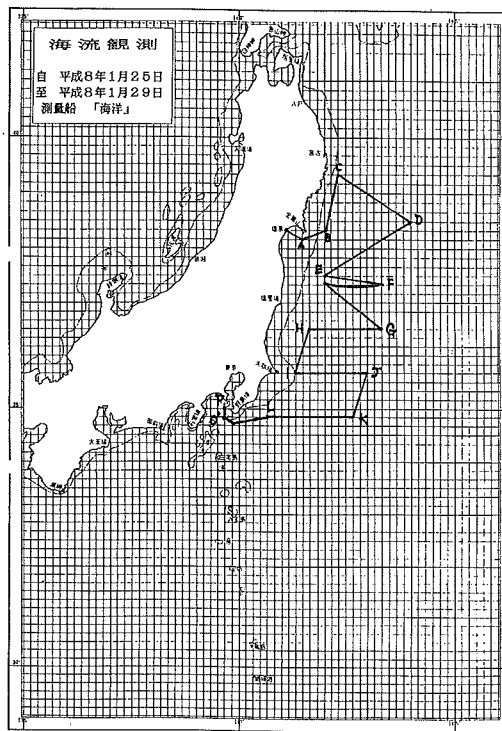
Regular observation of oceanography and marine meteorology.

**Summary of Measurements and Samples Taken :**

PI	NO	UNITS	DATA TYPE	DESCRIPTION
A	2319	NM	H71	Continuous sea surface temperature & salinity recording.
A	39	Stations	H10	Using Neil-Brown CTD.

A	17	Stations	B02, H09, H21 H22, H24, H25	Using Neil-Brown CTD with Roseete sampler.
A	17	Stations	H16	Using Secchi disk (Daytime only).
A	21	Drop	H13	XBT drops with T6 type probes.
A	70	Stations	D71	Using FURUNO Co., Acoustic Current Meter at 0, 50, 100m in depth.
A	8	Stations	H28	Using Neil-Brown CTD with Roseete sampler.
A	6	Stations	B08	Using bucket.
A	6	Stations	B09	Using NORPAC net.
B	108	Times	M06	Observed every three hours.
B	11	Times	M01	Using VAISALA system.
B	108	Times	D72	Using micro-wave & Tucker wave gauge.

Reference No. : 96072  
 Restrict Data :  
 Ship Name : KAIYO  
 Ship Type : Survey Vessel  
 Cruise No./Name : 960002  
 Cruise Period : 10/01/1996 to 29/01/1996  
 Port of Departure : Siogama  
 Port of Return : Tokyo  
 Responsible Laboratory : Hydrographic Department, MSA  
 Chief Scientist(s) : Y. Murase Hydrographic Department, MSA  
 General Ocean Area(s) : North Pacific Ocean, Philippine Sea  
 Geographic Coverage : 130  
 Principal Investigators :  
 A; Mr. K. Oka Hydrographic Department, MSA



**Objectives and Brief Narrative of Cruise :**

To reflect in Quick Bulletin of Ocean Condition and Ocean Current Forecasting chart by obtaining data of surface current and water temperature.

**Summary of Measurements and Samples Taken :**

PI	NO	UNITS	DATA TYPE	DESCRIPTION
A		continuous	D71	Surface current observation by ADCP.
A	51	Drops	H13	XBT Drops with T6 type probes.

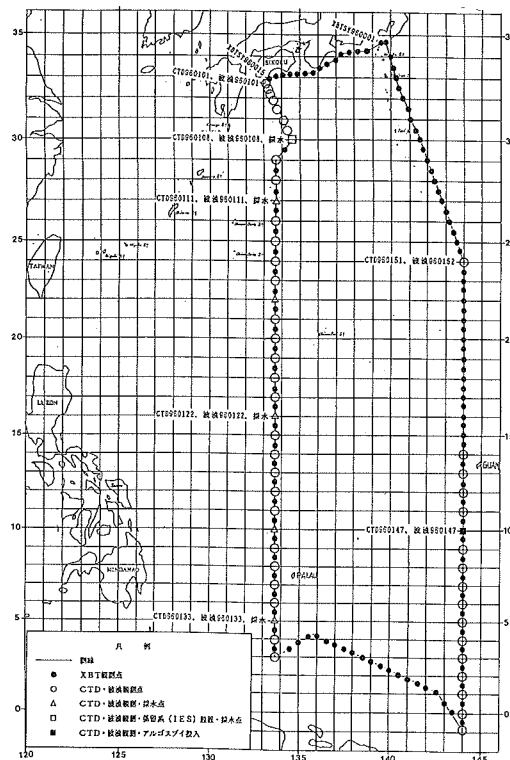
Reference No. : 96073  
 Restrict Data :  
 Ship Name : SHOYO  
 Ship Type : Survey Vessel  
 Cruise No./Name : 960003  
 Cruise Period : 10/01/1996 to 08/02/1996  
 Port of Departure : Tokyo  
 Port of Return : Tokyo  
 Responsible Laboratory : Hydrographic Department, MSA  
 Chief Scientist(s) : Mr. S. Ikeda Hydrographic Department, MSA  
 General Ocean Area(s) : East China Sea, Philippine Sea  
 Geographic Coverage : 22, 23, 58, 59, 94, 95, 130, 131, 132  
 Principal Investigators :

A; Mr. S. Ikeda Hydrographic Department, MSA  
 B; Mr. K. Oda Hydrographic Department, MSA

**Objectives and Brief Narrative of Cruise :**

Object : As a part of Kuroshio EXPLOITATION AND UTILIZATION RESEARCH (KER), this observation aims to investigate the structure of ocean circulation at the subtropical region in the Western Pacific Ocean.

- (A) Surface current observation by ADCP.
- (B) Measurement of the density of carbonic acid gas.
- (C) Measurement of water temperature by XBT.
- (D) Measurement of water temperature and salinity by using CTD system and chemical analysis of sea water for nutrient matter.
- (E) Wave observation by shipborne analyzer.
- (F) Mooring systems deployment of under water.
- (G) Deployment of ARGOS buoys (Drifting buoys).



**Moorings, Bottom Mounted Gear and Drifting Systems :**

PI	LAT.	Lon.	DATA TYPE	DESCRIPTION
A	25.04N	133.40E	D05	Deployed a drifting buoy, January 27 1996.

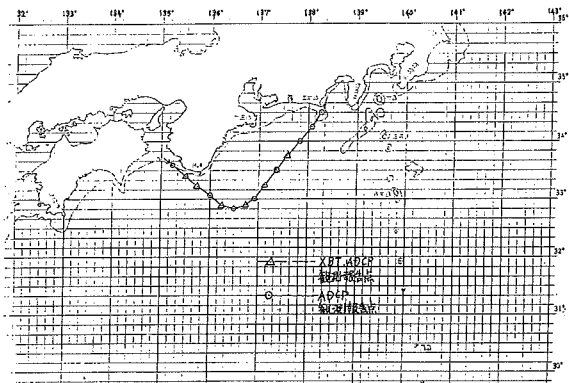
**Summary of Measurements and Samples Taken :**

PI	NO	UNITS	DATA TYPE	DESCRIPTION
A		continuous	D71	Surface current observation by ADCP.
A		continuous	H74	Measurement of the density of carbonic acid gas by using Beckman-Industrial Model 880.
A	117	Drops	H13	XBT Drops with T6 type probes.
A	52	Stations	H09, H21, H22, H26, H28	Deep cast using Rosette Sampler with reversing thermometers partly.
A	26	Stations	H10	Using Sea Bird SBE plus CTD (upper 6500db)
A	26	Stations	H21, H22, H26, H28	Surface temperature measurement and surface water sampling for chemical analysis.
A	26	Stations	D72	Wave observation using shipborne wave analyzer.
B			D02, D03, D04	All samples of surface for trace metals (Cadmium, Mercury, Copper and Zinc) petroleum oil.

Reference No. : 96074  
 Restrict Data : No  
 Ship Name : MEIYO  
 Ship Type : Survey Vessel  
 Cruise No./Name : 960005  
 Cruise Period : 11/01/1996 to 03/02/1996  
 Port of Departure : Komatsushima  
 Port of Return : Tokyo  
 Responsible Laboratory : Hydrographic Department, MSA  
 Chief Scientist(s) : N. Ozono Hydrographic Department, MSA  
 General Ocean Area(s) : Philippine Sea



Geographic Coverage : 131  
 Principal Investigators :  
 A; Mr. K. Oka Hydrographic Department, MSA



**Objectives and Brief Narrative of Cruise :**

To reflect in Quick Bulletin of Ocean Condition and Ocean Current Forecasting chart by obtaining data of surface current and water temperature.

**Summary of Measurements and Samples Taken :**

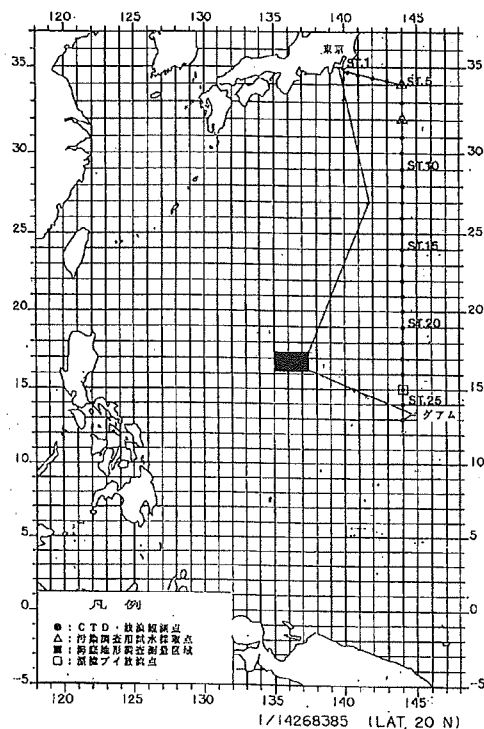
PI	NO	UNITS	DATA TYPE	DESCRIPTION
A		continuous	D71	Surface current observation by ADCP.
A	15	Drops	H13	XBT Drops with T6 type probes.

Reference No. : 96075  
 Restrict Data :  
 Ship Name : TAKUYO  
 Ship Type : Survey Vessel  
 Cruise No./Name : 960006/WESTPAC  
 Cruise Period : 16/02/1996 to 15/03/1996  
 Port of Departure : Tokyo  
 Port of Return : Tokyo  
 Responsible Laboratory : Hydrographic Department, MSA  
 Chief Scientist(s) : Mr. K. Oka Hydrographic Department, MSA  
 General Ocean Area(s) : East China Sea, Philippine Sea  
 Geographic Coverage : 22, 23, 58, 59, 94, 95, 130, 131, 321  
 Project Name : WESTPAC  
 Coordinating Body : IOC  
 Principal Investigators :  
 A; Mr. K. Oka Hydrographic Department, MSA  
 B; Mr.K. Oda Hydrographic Department, MSA

**Objectives and Brief Narrative of Cruise :**

Under the WESTPAC program of the Intergovernmental Oceanographic Commission (IOC), this observation aims to investigate the variations of ocean structure in the Western Pacific Ocean.

- (A) Surface current observation by ADCP.
- (B) Measurement of water temperature at surface layer by XBT.
- (C) Measurement of water temperature and salinity by using CTD system and chemical analysis of sea water for nutrient matter.
- (D) Wave observation by shipborne analyzer.
- (E) Deployment of ARGOS buoys (Drifting buoys).



**Moorings, Bottom Mounted Gear and Drifting Systems :**

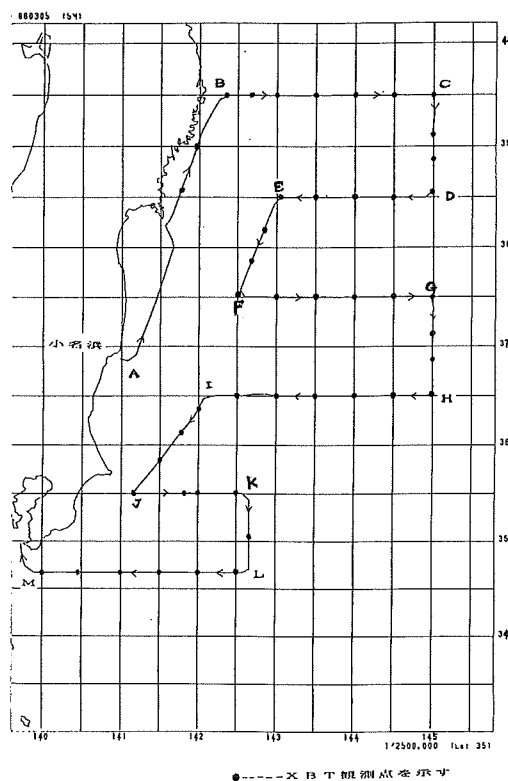
PI	LAT.	LON.	DATA TYPE	DESCRIPTION
A	14.57N	143.58E	D05	Deployed a drifting buoy, February 24 1996.

**Summary of Measurements and Samples Taken :**

PI	NO	UNITS	DATA TYPE	DESCRIPTION
A		continuous	D71	Surface current observation by ADCP.

A	94	Drops	H13	XBT Drops with T6 type probes.
A	26	Stations	H09, H21, H22 H26, H28	Deep cast using Rosette Sampler with reversing thermometers partly.
A	26	Stations	H10	Using Sea Bird SBE 9plus CTD (upper 6500db)
A	26	Stations	H21, H22 H26, H28	Surface temperature measurement and surface water sampling for chemical analysis.
A	26	Stations	D72	Wave observation using shipborne wave analyzer.
B	2	Samples	D02, D03, D04	All samples of surface for trace metals (Cadmium, Mercury, Copper and Zinc) petroleum oil.
A		continuous	G74	Submarine topographic survey along the cruise line.

Reference No. : 96076  
 Restrict Data :  
 Ship Name : TENYO  
 Ship Type : Survey Vessel  
 Cruise No./Name : 960008  
 Cruise Period : 29/02/1996 to 11/03/1996  
 Port of Departure : Onahama  
 Port of Return : Tokyo  
 Responsible Laboratory : Hydrographic Department, MSA  
 Chief Scientist(s) : T. Nishikawa Hydrographic Department, MSA  
 General Ocean Area(s) : North Pacific Ocean  
 Geographic Coverage : 130  
 Principal Investigators :  
 A; Mr. K. Oka Hydrographic Department, MSA



**Objectives and Brief Narrative of Cruise :**

To reflect in Quick Bulletin of Ocean Condition and Ocean Current Forecasting chart by obtaining data of surface current and water temperature.

**Summary of Measurements and Samples Taken :**

PI	NO	UNITS	DATA TYPE	DESCRIPTION
A		continuous	D71	Surface current observation by ADCP.
A	15	Drops	H13	XBT Drops with T6 type probes.

Reference No. : 96077  
 Restrict Data :  
 Ship Name : SHOYO  
 Ship Type : Survey Vessel

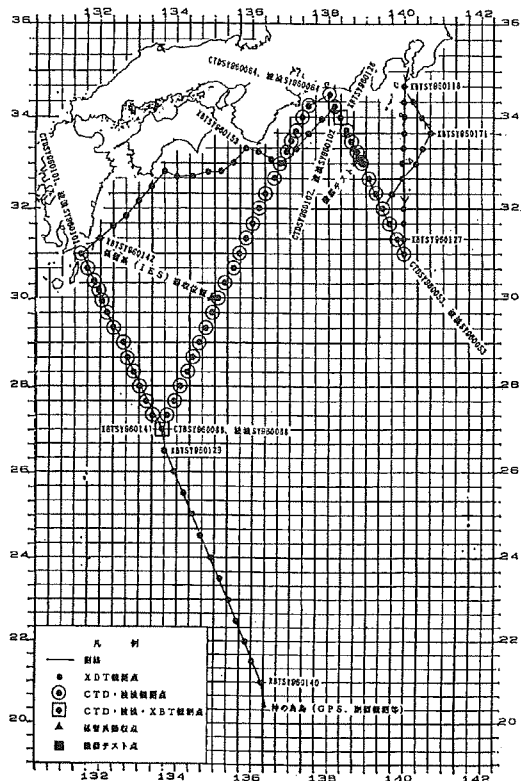
Cruise No./Name : 960010  
 Cruise Period : 18/04/1996 to 07/05/1996  
 Port of Departure : Tokyo  
 Port of Return : Tokyo  
 Responsible Laboratory : Hydrographic Department, MSA  
 Chief Scientist(s) : Mr. Y. Shimohira Hydrographic Department, MSA  
 General Ocean Area(s) : North Pacific Ocean, Philippine Sea  
 Geographic Coverage : 95, 130, 131  
 Principal Investigators :  
 A; Mr. Y. Shimohira Hydrographic Department, MSA

**Objectives and Brief Narrative of Cruise :**

To reflect in Quick Bulletin of Ocean Condition and Ocean Current Forecasting chart by obtaining data of surface current and water temperature.

Oceanographic observation data on the spot for oceanographic research advancement by valid utilization of a micro wavy altimeter are collected and Data transmission experiment of multipurpose drifting buoy is performed.

- (A) Surface current observation by ADCP.
- (B) Measurement of the density of carbonic acid gas.
- (C) Measurement of water temperature at surface layer by XBT.
- (D) Measurement of water temperature and salinity by using CTD system and chemical analysis of sea water for nutrient matter.
- (E) Wave observation by shipborne analyzer.



**Summary of Measurements and Samples Taken :**

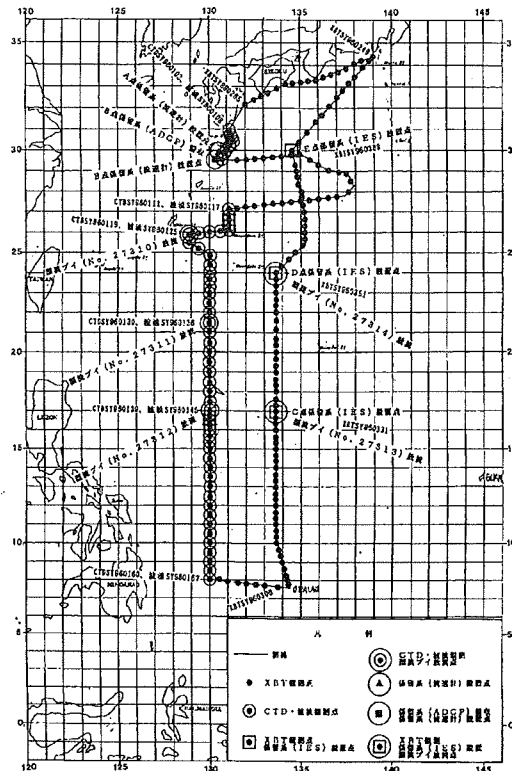
PI	NO	UNITS	DATA TYPE	DESCRIPTION
A		continuous	D71	Surface current observation by ADCP.
A		continuous	H74	Measurement of the density of carbonic acid gas by using Beckman-Industrial Model 880.
A	56	Drops	H13	XBT Drops with T6 type probes.
A	52	Stations	H09, H21, H22 H26, H28	Deep cast using Rosette Sampler with reversing thermometers partly.
A	52	Stations	H10	Using Sea Bird SBE 9plus CTD (upper 6500db)
A	52	Stations	H21, H22 H26, H28	Surface temperature measurement and surface water sampling for chemical analysis.
A	52	Stations	D72	Wave observation using shipborne wave analyzer.

Reference No. : 96078  
 Restrict Data :  
 Ship Name : SHOYO  
 Ship Type : Survey Vessel  
 Cruise No./Name : 960021 / WESTPAC  
 Cruise Period : 12/07/1996 to 10/08/1996  
 Port of Departure : Tokyo  
 Port of Return : Tolyo  
 Responsible Laboratory : Hydrographic Department, MSA  
 Chief Scientist(s) : Mr. S. Ikeda Hydrographic Department, MSA

General Ocean Area(s) : North Pacific Ocean, Philippine Sea  
 Specific Areas :  
 Geographic Coverage : 25, 59, 95, 96, 130, 131  
 Principal Investigators :  
 A; Mr. S. Ikeda Hydrographic Department, MSA

**Objectives and Brief Narrative of Cruise :**

- As a part of WOCE, this observation aims to investigate the structure of ocean circulation at the North Pacific Ocean.  
 Experiment of multipurpose drifting buoy is performed.  
 (A) Surface current observation by ADCP.  
 (B) Measurement of the density of carbonic acid gas.  
 (C) Measurement of water temperature at surface layer by XBT.  
 (D) Measurement of water temperature and salinity by using CTD system and chemical analysis of sea water for nutrient matter.  
 (E) Wave observation by shipborne analyzer.  
 (F) Deployment of ARGOS buoys (Drifting buoys).



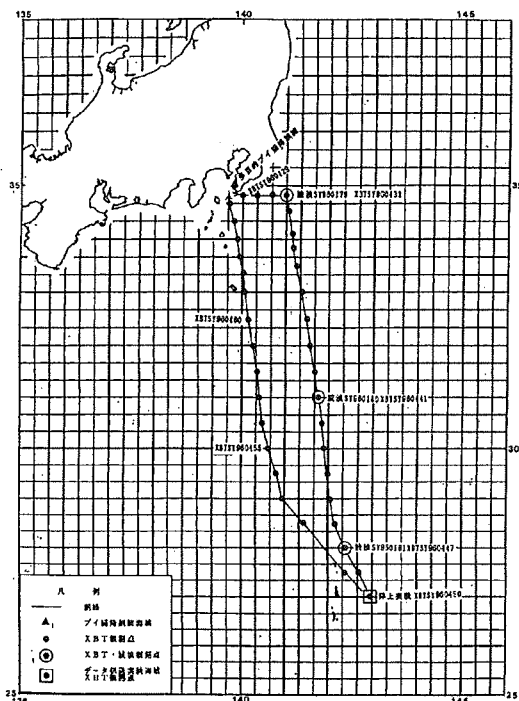
**Moorings, Bottom Mounted Gear and Drifting Systems :**

PI	LAT.	LON.	DATA TYPE	DESCRIPTION
A	29.55N	130.52E	D01, D09	Mooring system deployment set 3 current meters (293, 449, 665 meters layer from the bottom) July 15 1996.
A	29.36N	130.38E	D01, D09	Mooring system recovery, July 15 1996.
A	29.36N	130.37E	D01, D09	Mooring system deployment set 3 current meters (273, 635, 479 meters layer from the bottom) July 15 1996.
A	25.50N	128.49E	D05	Deployed a drifting buoy, July 20, 1996.
A	21.28N	130.00E	D05	Deployed a drifting buoy, July 23, 1996.
A	16.59N	130.00E	D05	Deployed a drifting buoy, July 24, 1996.
A	17.00N	133.40E	D01, D09	Mooring system deployment set 1 IES (10 meters layer from the bottom) August 5 1996.
A	17.01N	133.40E	D05	Deployed a drifting buoy, August 5 1996.
A	24.00N	134.10E	D01, D09	Mooring system deployment set 1 IES (10 meters layer from the bottom) August 6 1996.
A	24.00N	133.40E	D05	Deployed a drifting buoy, August 6 1996.
A	30.00N	134.36E	D01, D09	Mooring system deployment set 1 IES (10 meters layer from the bottom) August 8, 1996.

**Summary of Measurements and Samples Taken :**

PI	NO	UNITS	DATA TYPE	DESCRIPTION
A		continuous	H71	Surface current observation by ADCP.
A		continuous	H74	Measurement of the density of carbonic acid gas by using Beckman-Industrial Model 880.
A	132	Drops	H13	XBT Drops with T6 type probes.
A	58	Stations	H09, H21, H22, H26, H28	Deep cast using Rosette Sampler with reversing thermometers partly.
A	58	Stations	H10	Using Sea Bird SBE 9plus CTD (upper 6500db)
A	58	Stations	H21, H22, H26, H28	Surface temperature measurement and surface water sampling for chemical analysis.

Reference No. : 96079  
 Restrict Data :  
 Ship Name : SHOYO  
 Ship Type : Survey Vessel  
 Cruise No./Name : 960030  
 Cruise Period : 08/10/1996 to 13/10/1996  
 Port of Departure : Tokyo  
 Port of Return : Tokyo  
 Responsible Laboratory : Hydrographic Department, MSA  
 Chief Scientist(s) : Mr. K. Oka Hydrographic Department, MSA  
 General Ocean Area(s) : North Pacific Ocean  
 Geographic Coverage : 94, 130  
 Principal Investigators :  
 A; Mr. K. Oka Hydrographic Department, MSA



**Objectives and Brief Narrative of Cruise :**

To reflect in Quick Bulletin of Ocean Condition and Ocean Current Forecasting chart by obtaining data of surface current and water temperature.  
 Experiment of multipurpose drifting buoy is performed.

**Summary of Measurements and Samples Taken :**

PI	NO	UNITS	DATA TYPE	DESCRIPTION
A		continuous	D71	Surface current observation by ADCP.
A	38	Drops	H13	XBT Drops with T6 type probes.
A		continuous	H74	Measurement of the density of carbonic acid gas by using Beckman-Industrial Model 880.

Reference No. : 96080  
 Restrict Data :  
 Ship Name : SHOYO  
 Ship Type : Survey Vessel  
 Cruise No./Name : 960035  
 Cruise Period : 28/10/1996 to 12/11/1996  
 Port of Departure : Tokyo  
 Port of Return : Tokyo  
 Responsible Laboratory : Hydrographic Department, MSA  
 Chief Scientist(s) : Mr. Y. Iwanaga Hydrographic Department, MSA  
 General Ocean Area(s) : North Pacific Ocean, Philippine Sea  
 Geographic Coverage : 95, 96, 130, 131  
 Principal Investigators :

A; Mr. Y. Iwanaga Hydrographic Department, MSA

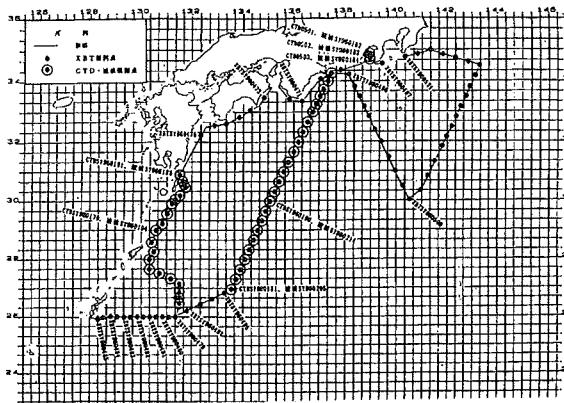
**Objectives and Brief Narrative of Cruise :**

To reflect in Quick Bulletin of Ocean Condition and Ocean Current Forecasting chart by obtaining data of surface current and water temperature. Oceanographic observation data on the spot for oceanographic.

As a part of WOCE, this observation aims to investigate the structure of ocean circulation at the North Pacific Ocean.

Research advancement by valid utilization of a micro wave altimeter are collected and Data transmission experiment of multipurpose drifting buoy is performed.

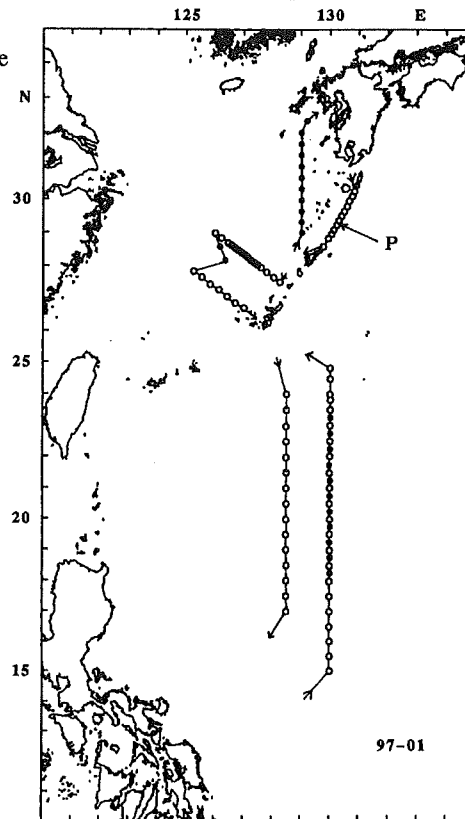
- (A) Surface current observation by ADCP.
- (B) Measurement of the density of carbonic acid gas.
- (C) Measurement of water temperature at surface layer by XBT.
- (D) Measurement of water temperature and salinity by using CTD system and chemical analysis of sea water for nutrient matter.
- (E) Wave observation by shipborne analyzer.



**Summary of Measurements and Samples Taken :**

PI	NO	UNITS	DATA TYPE	DESCRIPTION
A		continuous	D71	Surface current observation by ADCP.
A		continuous	H74	Measurement of the density of carbonic acid gas by using Beckman-Industrial Model 880.
A	58	Drops	H13	XBT Drops with T6 type probes.
A	44	Stations	H09, H21, H22 H26, H28	Deep cast using Rosette Sampler with reversing thermometers partly.
A	44	Stations	H10	Using Sea Bird SBE 9plus CTD (upper 6500db)
A	44	Stations	H21, H22 H26, H28	Surface temperature measurement and surface water sampling for chemical analysis.
A	44	Stations	D72	Wave observation using shipborne wave analyzer.

Reference No. : 97001  
 Restrict Data : No  
 Ship Name : CHOFU MARU  
 Ship Type : Observation Ship  
 Cruise No./Name : 97-01  
 Cruise Period : 22/01/1997 to 08/03/1997  
 Port of Departure : Nagasaki  
 Port of Return : Nagasaki  
 Responsible Laboratory : Nagasaki Marine Observatory, JMA  
 Chief Scientist(s) : K. Kimura Nagasaki Marine Observatory, JMA  
 General Ocean Area(s) : East China Sea, Philippine Sea  
 Geographic Coverage : 59, 60, 95, 96, 130, 131  
 Project Name : IGOSS, WESTPAC, KER, MARPOLMON  
 Principal Investigators :  
 A; S. Wakai Nagasaki Marine Observatory, JMA  
 B; K. Kimura Nagasaki Marine Observatory, JMA  
 C; M. Iwamoto Nagasaki Marine Observatory, JMA  
 D; K. Ashimine Nagasaki Marine Observatory, JMA



○ Serial(CTD) Obs.  
 ● BT Obs.  
 P Pollution Obs.

**Objectives and Brief Narrative of Cruise :**

A seasonal oceanographical observation (physical, chemical and biology) in the East China Sea and the Philippine Sea in winter.  
 An observation of marine pollutant to monitor background of marine pollution.  
 Oceanographical and maritime meteorological observations for the verification of buoy robot observation.

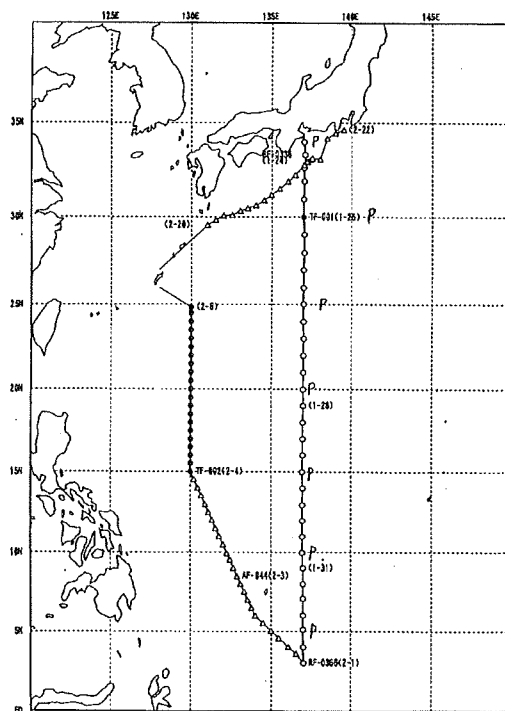
**Summary of Measurements and Samples Taken :**

PI	NO	UNITS	DATA TYPE	DESCRIPTION
A	72	Stations	H10	Using Neil-Brown Mark 3B CTD.
A	37	Days	H11	Using Tsurumi-Seiki co., thermosalinograph.
A	37	Days	D71	Using Furuno co., ADCM
A	24	Drops	H13	XBT drops with T6 type probes.
B	29	Stations	H21, H22 H24, H25	Using Rosette sampler.
B	3	Stations	H23, H28	Using Rosette sampler.
B	2	Stations	P02	Using Rosette sampler.
B	2	Stations	P03	Using glass jar.
B	1	Stations	P90	Using Neuston net.
B	2	Stations	H31	Using Rosette sampler.
C	8	Stations	B02	Using Rosette sampler.
C	8	Stations	B08	Using stainless steel water bucket.
C	8	Stations	B09	Using Norpac net.
D	7	Days	M06	Using cylindrical resonator digital barometer, platinum resistance thermometer, lithium chloride dew-point hygrometer and wind vane and fan-anemograph.
D	26	Times	M01	Automated shipboard aerological observation system by VAISALA.
D	131	Stations	D72	Using Micro-wave wavemeter.

Reference No. : 97002  
 Restrict Data : No  
 Ship Name : RYOFU MARU  
 Ship Type : Research Vessel  
 Cruise No./Name : 97-01  
 Cruise Period : 21/01/1997 to 25/02/1997  
 Port of Departure : Tokyo  
 Port of Return : Tokyo  
 Responsible Laboratory : Climate and Marine Department, JMA  
 Chief Scientist(s) : N. Ishikawa Climate and Marine Department, JMA  
 General Ocean Area(s) : Philippine Sea  
 Geographic Coverage : 23, 59, 95, 131  
 Project Name : IGOSS, WESTPAC, MARPOLMON, KER  
 Principal Investigators :  
 A; K. Ishikawa Climate and Marine Department, JMA  
 B; H. Jobashi Climate and Marine Department, JMA  
 C; H. Tanabe Climate and Marine Department, JMA

**Objectives and Brief Narrative of Cruise :**

- A routine oceanographic observation (physical, chemical biological).
  - a) Seasonal observation of marine condition.
  - b) Monitoring background marine pollution.
- Recovery and deployment mooring current meter systems.
- Sea water sampling for radioactivity measurement.



Track Chart  
 Ryofu Maru (January 21~ February 25, 1997)

*Moorings, Bottom Mounted Gear and Drifting Systems :*

<i>PI</i>	<i>LAT</i>	<i>LON.</i>	<i>DATA TYPE</i>	<i>DESCRIPTION</i>
A	25.50N	128.00E	D71	Deployed ADCP on Feb. 13 1997.
A	28.58N	130.12E	D01	Recovered four recording current meters (AANDERAA Instruments RCM-8) on Feb. 14 1997, setting depths are about 250, 350, 500, 700m.
A	28.58N	130.12E	D01	Deployed four the same type instruments, on Feb. 17 1997, setting depths are about 250, 350, 500, 700 m.
A	29.11N	130.22E	D01	Recovered four the same type instruments on Feb. 19 1997, setting depths are about 250, 350, 500, 700m.
A	29.11N	130.22E	D01	Deployed four the same type instruments on Feb. 20 1997, setting depths are about 250, 350, 500, 700 m.

*Summary of Measurements and Samples Taken :*

<i>PI</i>	<i>NO</i>	<i>UNITS</i>	<i>DATA TYPE</i>	<i>DESCRIPTION</i>
A	5166	NM	H11	Continuous sea surface temperature recording.
A	32	Stations	H10	Using FSI-ICTD.
A	97	Stations	D71	Using R.D Instrument Acoustic Doppler Current profiler.
A	54	Stations	G73	Using NEC Echo sounder.
A	14	Stations	H16	Using Secchi Disk.
A	22	Drops	H13	X-BT drops with T-6 type probes.
A	16	Stations	H09, H21, H22 H24, H25, H26	Using Rosette Sampler.
A	16	Stations	H28	Using Rosette Sampler.
A	14	Stations	B02	Using Rosette Sampler.
A	6	Stations	B08, B09	Using bucket (B08), NORPAC net (B09).
A	5	Stations	H31	Using Niskin Bottle and bucket.
B	7	Stations	P02, P03	Heavy metals (P02), Dissolved Hydrocarbons (P03).
B	8	Stations	P03	Using Neuston Net.
B	14	Stations	H74	Total inorganic carbon concentration in seawaters.
B	581	Stations	M71	CH4 concentrations in air.
B	605	Stations	M74, M71	CO2 concentrations in air and seawater.
C	211	Times	M06	Observed every 3 hours.
C	27	Times	M01	Using Shipboard Automatic Radio-Sonde System.

*Reference No. :* 97003  
*Restrict Data :* No  
*Ship Name :* KEIFU MARU  
*Ship Type :* Research Vessel  
*Cruise No./Name :* 97-01  
*Cruise Period :* 22/01/1997 to 25/02/1997  
*Port of Departure :* Tokyo  
*Port of Return :* Tokyo  
*Responsible Laboratory :* Climate and Marine Department, JMA  
*Chief Scientist(s) :* T. Maehira Climate and Marine Department, JMA  
*General Ocean Area(s) :* North Pacific Ocean, Philippine Sea  
*Geographic Coverage :* 95, 130, 131  
*Principal Investigators :*  
A; K. Ishikawa Climate and Marine Department, JMA  
B; H. Jobashi Climate and Marine Department, JMA



C; H. Eguchi                   Climate and Marine Department, JMA  
D; M. Takada                   Climate and Marine Department, JMA  
E; K. Tanaka                   Climate and Marine Department, JMA

**Objectives and Brief Narrative of Cruise :**

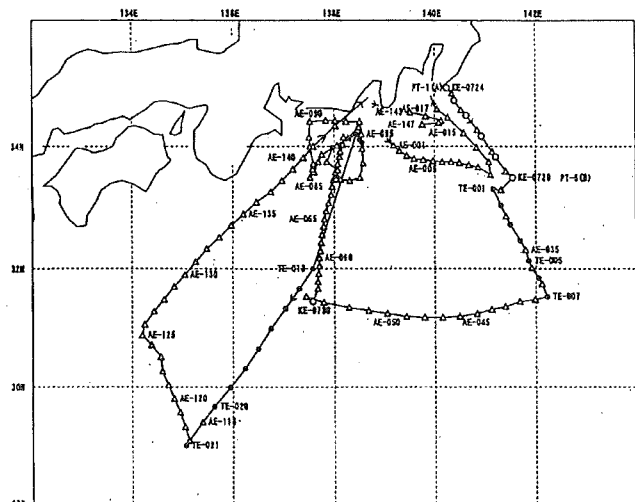
Marine meteorological, radar and aerological observations in order to research the distribution of the wind and the wave in Ensyuu-Nada in winter.

The observation by using the wave buoy system in order to obtain wave heights directions and spectrums of wave distribution.

Wave observation around Omae-Saki Point to compare with a coastal it.

Oceanographical observation to obtain set which would be available for the assimilation data to models in mid-latitude area.

Seasonal oceanographic observations at south-east of Bosou Peninsula.



観測点図  
○ : 各層観測  
● : 表層水温観測  
△ : 海潮流観測

**Moorings, Bottom Mounted Gear and Drifting Systems :**

PI	LAT.	LON.	DATA TYPE	DESCRIPTION
E	34.41N	138.26E	G90	Pop-up-Ocean-Bottom Seismograph, 1492m, January 26 (deployment).
E	34.47N	138.37E	G90	Pop-up-Ocean-Bottom Seismograph, 1715m, January 26 (recover).
E	34.47N	138.38E	G90	Pop-up-Ocean-Bottom Seismograph, 1716m, January 26 (deployment).
E	33.41N	141.09E	H09	Pop-up-Ocean-Bottom Seismograph, 13555m, January 27 (recover).
E	34.47N	138.38E	G90	Pop-up-Ocean-Bottom Seismograph, 1716m, February 22 (recover).
E	34.47N	138.37E	G90	Pop-up-Ocean-Bottom Seismograph, 1716m, February 22 (deployment).
E	34.41N	138.26E	G90	Pop-up-Ocean-Bottom Seismograph, 1492m, February 22 (recover).
E	34.42N	138.27E	G90	Pop-up-Ocean-Bottom Seismograph, 1484m, February 22 (deployment).
C	31.29N	137.31E	D72	Wave observation Buoy, Jan. 31 - Feb. 20.

**Summary of Measurements and Samples Taken :**

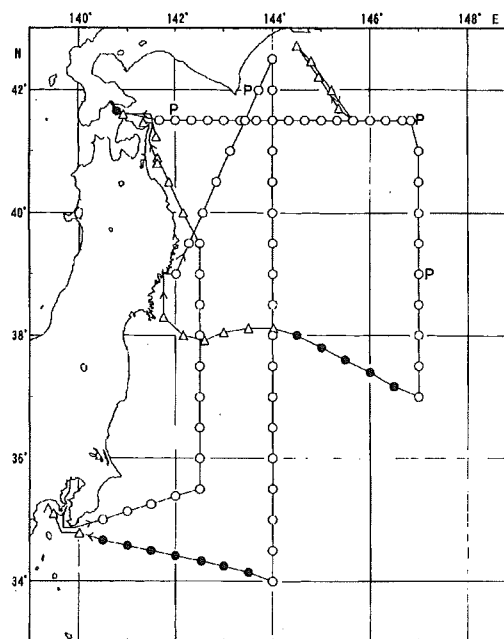
PI	NO	UNITS	DATA TYPE	DESCRIPTION
A	7	Stations	H10	Using Neil-Brown Mark 3B CTD.
A	147	Stations	D71	Using RD Instruments Acoustic Doppler Current Profiler.
A	2	Stations	H09, H21, H22 H24, H25	Using Rosette Sampler.
A	1	Stations	H16	Using Secchi Disk.
A	7	Drops	H13	XBT drops with T5 type probes.
A	14	Drops	H13	XBT drops with T6 type probes.
A	2	Stations	H31	Using stainless steel water bucket.
B	2	Stations	P02	Using polyethylene bottle or Rosette Sampler, Heavy metals (Mercury and Cadmium).
B	2	Stations	P03	Using glass jar, Dissolved or dispersive Petroleum hydrocarbons in seawater.
D	133	Times	M06	Observed every 3 hours.
D	200	Times	M90	Weather Radar, observed every 3 hours.
D	25	Times	M01	Using JMA-SD 83 type Radio-sonde-system and JMA-RS2-91 type-sonde.

Reference No. :                   97004  
Restrict Data :                   No  
Ship Name :                   KOFU MARU  
Ship Type :                   Research Vessel

Cruise No./Name : 97-01  
 Cruise Period : 27/01/1997 to 04/03/1997  
 Port of Departure : Hakodate  
 Port of Return : Hakodate  
 Responsible Laboratory : Hakodate Marine Observatory, JMA  
 Chief Scientist(s) : Y. Miura Hakodate Marine Observatory, JMA  
 General Ocean Area(s) : North Pacific Ocean  
 Geographic Coverage : 130, 166  
 Project Name : IGOSS, WESTPAC, MARPOLMON  
 Coordinating Body : WMO, IOC  
 Principal Investigators :  
 A; Oceanographical Division Hakodate Marine Observatory, JMA  
 B; Marine Meteorological Division Hakodate Marine Observatory, JMA  
 C; Pollutants Chemical Analysis Center Climate and Marine Department, JMA

**Objectives and Brief Narrative of Cruise :**

1. Regular observation of oceanography and marine meteorology.
2. Background marine pollution monitoring.
3. Sea water sampling for measurement of radioactivity.



Track Chart of KOFU MARU 27 Jan. ~ 4 Mar., 1997

○ CTD & ACM Obs.  
 ● BT & ACM Obs.  
 △ ACM Obs.  
 P Pollution Obs.

**Summary of Measurements and Samples Taken :**

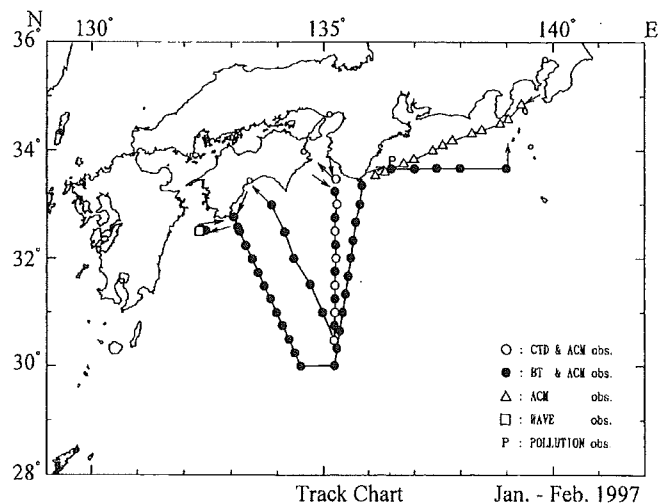
PI	NO	UNITS	DATA TYPE	DESCRIPTION
A	2193	NM	H71	Continuous sea surface temperature & salinity recording.
A	78	Stations	H10	Using Neil-Brown CTD.
A	37	Stations	H09	Using Neil-Brown CTD with Roseete sampler.
A	35	Stations	B02, H21, H22 H24, H25	Using Neil-Brown CTD with Roseete sampler.
A	28	Stations	H16	Using Secchi disk (Daytime only).
A	13	Drops	H13	XBT drops with T6 type probes.
A	100	Stations	D71	Using FURUNO Co., Acoustic Current Meter at 0, 50, 100m in depth.
A	11	Stations	H28	Using Neil-Brown CTD with Roseete sampler.
A	6	Stations	B08	Using bucket.
A	6	Stations	B09	Using NORPAC net.
B	175	Times	M06	Observed every three hours.
B	19	Times	M01	Using VAISALA system.
B	211	Times	D72	Using micro-wave & Tucker wave gauge.
C	2	Samples	P02	Sampling for analysis of heavy metals.
C	2	Samples	P90	Sampling for measurement of petroleum residue.
A	2	Samples	H31	Sampling for measurement of Total $\beta$ radioactivity.
C	2	Stations	P03	Using Neuston net.

**Reference No. :** 97005  
**Restrict Data :** No  
**Ship Name :** SHUMPU MARU  
**Ship Type :** Observation Ship  
**Cruise No./Name :** 97-01  
**Cruise Period :** 22/01/1997 to 28/02/1997  
**Port of Departure :** Kobe  
**Port of Return :** Kobe  
**Responsible Laboratory :** Kobe Marine Observatory, JMA  
**Chief Scientist(s) :** T. Hinata Kobe Marine Observatory, JMA  
**General Ocean Area(s) :** Philippine Sea  
**Specific Areas :** South of Honshu  
**Geographic Coverage :** 131  
**Project Name :** IGOSS, WESTPAC, MARPOLMON, WOCE  
**Principal Investigators :**  
 A; T. Hinata Kobe Marine Observatory, JMA  
 B; H. Honda Kobe Marine Observatory, JMA  
 C; T. Sakai Climate and Marine Department, JMA  
 D; E. Kamihira Climate and Marine Department, JMA

#### Objectives and Brief Narrative of Cruise :

##### Objectives:

- 1.Regular Oceanographical (physical, chemical and biological) and maritime meteorological observations in the South of Honsyu.
- 2.Oceanographic background in the South of Honsyu.
- 3.Observations along the TOPEX/POSEIDON altimetry satellite tracks in order to contribute to the development of oceanographical data assimilation system.

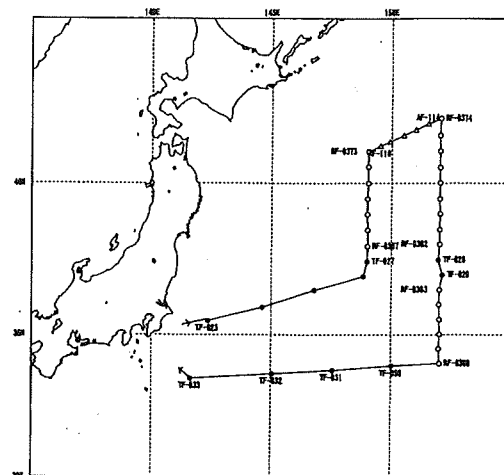


#### Summary of Measurements and Samples Taken :

PI	NO	UNITS	DATA TYPE	DESCRIPTION
A	2195	NM	H71	Continuous sea surface temperature recording.
A	61	Stations	D71	Using FURUNO ELECTRIC co., LTD Acoustic Doppler Current Meter.
A	7	Stations	H10	Using Neil-Brown Mark 3B CTD (Upper 1200m).
A	7	Stations	B02, H09, H21 H22, H24, H25	Using Rossete sampler.
A	2	Stations	H28	Using Rossete sampler.
C	2	Stations	P02, P90	Dissolved Hydro-carbons and Heavy metals (Cd, Hg)
A	1	Stations	P03	Using neuston net.
A	7	Stations	B08, B09	Using bucket and NORPAC net.
A	4	Stations	H16	Using Secchi disk.
A	42	Drops	H13	27stations using XBT with T-6type probe, 12stations using XBT with T-7 type probe and 3stations using TSURUMI-SEIKI co., LTD MICON-BT.
A	49	Stations	G73	Using KAIJO co., LTD Echo sounder.
B	50	Times	M06	Observed every three hours.
B	30	Stations	D72	Using wave recorder, OKI DENKI co., LTD WX-1008.

D 2 Stations H31 Gross beta-radio activity, Using bucket.

Reference No. : 97006  
 Restrict Data : No  
 Ship Name : RYOFU MARU  
 Ship Type : Research Vessel  
 Cruise No./Name : 97-04  
 Cruise Period : 23/04/1997 to 06/05/1997  
 Port of Departure : Tokyo  
 Port of Return : Tokyo  
 Responsible Laboratory : Climate and Marine Department, JMA  
 Chief Scientist(s) : K. Nemoto Climate and Marine Department, JMA  
 General Ocean Area(s) : North Pacific Ocean  
 Geographic Coverage : 129, 130, 165  
 Project Name : IGOSS, MARPOLMON, WESTPAC  
 Principal Investigators :  
 A; E. Kamihira Climate and Marine Department, JMA  
 B; T. Sakai Climate and Marine Department, JMA  
 C; T. Kato Climate and Marine Department, JMA



Track Chart  
 Ryofu Maru (April 23~ May 6, 1997)

○ CTD & ACM Obs.  
 ● XBT & ACM Obs.  
 △ ACM Obs.

Objectives and Brief Narrative of Cruise :

- A routine oceanographic observation (physical, chemical, biological)
- a) Seasonal observation of marine condition.
- b) Monitoring background marine pollution.

Summary of Measurements and Samples Taken :

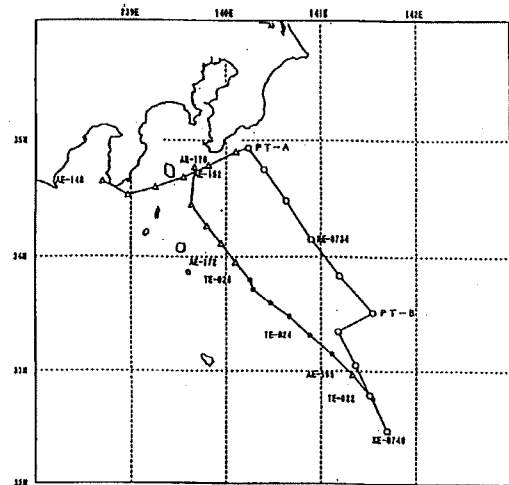
PI	NO	UNITS	DATA TYPE	DESCRIPTION
A	2221	NM	H71	Continuous sea surface temperature and salinity recording.
A	22	Stations	H10	Using FSI-ICTD.
A	38	Stations	D71	Using R.D Instrument Acoustic Doppler Current Profiler.
A	33	Stations	G73	Using NEC Echo sounder.
A	10	Stations	H16	Using Secchi Disk.
A	11	Drops	H13	X-BT drops with T-6 type probes.
A	12	Stations	H09, H21	Using Rosette Sampler.
A	7	Stations	B02	Using Rosette Sampler.
B	220	Stations	H74, M71	CO2 and CH4 concentrations in air.
B	9	Days	P90	Oir slicks and floating pollutants (Daytime only)
C	74	Times	M06	Observation every 3 hours.
C	15	Ascents	M01	Using shipboard Automatic Radio-System.

Reference No. : 97007  
 Restrict Data : No  
 Ship Name : KEIFU MARU  
 Ship Type : Research Vessel  
 Cruise No./Name : 97-04  
 Cruise Period : 23/04/1997 to 30/04/1997

Port of Departure : Tokyo  
 Port of Return : Tokyo  
 Responsible Laboratory : Climate and Marine Department, JMA  
 Chief Scientist(s) : T. Maehira Climate and Marine Department, JMA  
 General Ocean Area(s) : Philippine Sea, North Pacific Ocean  
 Geographic Coverage : 130, 131  
 Principal Investigators :  
 A; K. Ishikawa Climate and Marine Department, JMA  
 B; T. Sakai Climate and Marine Department, JMA  
 C; M. Takada Climate and Marine Department, JMA  
 D; S. Saito Seismological and Volcanological Department, JMA

**Objectives and Brief Narrative of Cruise :**

Seasonal oceanographic observations at south-east of Bosou Peninsula.  
 Oceanographic observation to obtain data set which would be available for the assimilation data to models in mid-latitude area.  
 The management of ocean bottom seismographs to the south of Japan.



**Moorings, Bottom Mounted Gear and Drifting Systems :**

PI	LAT.	LON.	DATA TYPE	DESCRIPTION
D	34.47N	138.37E	G90	Pop-up-Ocean-Bottom Seismograph, 11716m, April 24 (Deployed)
D	34.42N	138.27E	G90	Pop-up-Ocean-Bottom Seismograph, 1484m, April 24 (Recovered)
D	34.47N	138.37E	G90	Pop-up-Ocean-Bottom Seismograph, 11716m, April 24 (Recovered)

**Summary of Measurements and Samples Taken :**

PI	NO	UNITS	DATA TYPE	DESCRIPTION
A	10	Stations	H10	Using Neil-Brown Mark 3B CTD.
A	29	Stations	D71	Using RD Instruments Acoustic Doppler Current Profiler.
A	10	Stations	H09, H21, H22 H24, H25	Using Rosette Sampler.
A	5	Stations	H16	Using Secchi Disk.
A	7	Drops	H13	XBT drops with T6 type probes.
B	2	Stations	P02	Using polyethylene bottle or Rosette Sampler, Heavy metals (Mercury and Cadmium).
B	2	Stations	P03	Using glass jar, Dissolved hydrocarbons in surface seawater.
C	32	Times	M06	Observed every 3 hours.
C	11	Times	M90	Weather Radar, observed every 3 hours.
C	4	Ascents	M01	Using JMA-SD83 type Radio-sonde-system and JMA-RS2-91 type Radio-sonde.
B	4	Days	P90	Oil slicks and floating pollutants (Daytime only).

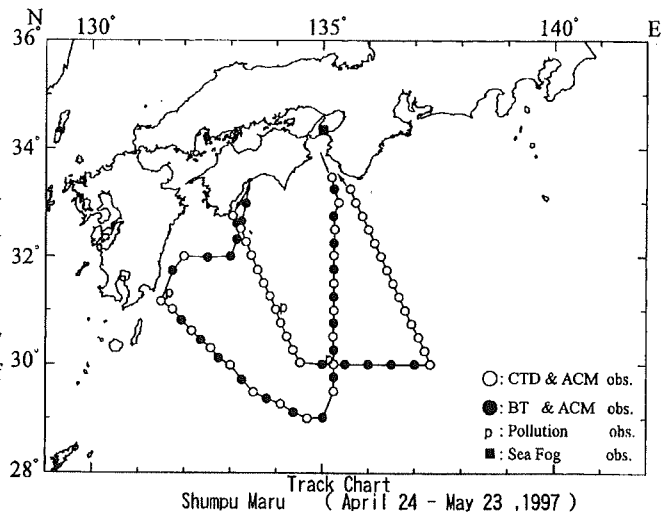
Reference No. : 97008  
 Restrict Data : No  
 Ship Name : SHUMPU MARU  
 Ship Type : Observation Ship  
 Cruise No./Name : 97-04

**Cruise Period :** 24/04/1997 to 23/05/1997  
**Port of Departure :** Kobe  
**Port of Return :** Kobe  
**Responsible Laboratory :** Kobe Marine Observatory, JMA  
**Chief Scientist(s) :** T. Nakamura Kobe Marine Observatory, JMA  
**General Ocean Area(s) :** Philippine Sea, Inland Sea  
**Specific Areas :** South of Honsyu, Bay of Osaka  
**Geographic Coverage :** 95, 131  
**Project Name :** IGOSS, WESTPAC, MARPOLMON, WOCE  
**Principal Investigators :**  
 A; T. Hinata Kobe Marine Observatory, JMA  
 B; K. Hori Kobe Marine Observatory, JMA  
 C; T. Sakai Climate and Marine Department, JMA  
 D; E. Kamihira Climate and Marine Department, JMA

**Objectives and Brief Narrative of Cruise :**

**Objectives:**

1. Regular Oceanographical (physical, chemical and biological) and maritime meteorological observations in the South of Honshu.
2. Oceanographic background pollution observation.
3. Observations along the TOPEX/POSEIDON altimetry satellite tracks in order to contribute to the development of oceanographical data assimilation system.
4. Sea fog observations in the bay of Osaka.



**Summary of Measurements and Samples Taken :**

PI	NO	UNITS	DATA TYPE	DESCRIPTION
A	1682	NM	H71	Continuous sea surface temperature recording.
A	71	Stations	D71	Using FURUNO ELECTRIC co., LTD Acoustic Doppler Current Meter.
A	44	Stations	H10	Using Neil-Brown Mark 3B CTD.
A	18	Stations	B02, H09, H21 H22, H24, H25	Using Rossette sampler.
A	8	Stations	H28	Using Rossette sampler.
C	2	Stations	P02, P90	Heavy metals (Cd, Hg) and Dissolved Hydro-carbons.
A	8	Days	P90	Oil slicks and floating pollutants (Daytime only).
A	3	Stations	P03	Using neuston net.
A	10	Stations	B08, B09	Using bucket and NORPAC net.
A	23	Stations	H16	Using Secchi Disk.
A	27	Drops	H13	1 station: We used XBT drops with T-6 type probe. 26 stations: We used BT drops with TSURUMI-SEIKI co., LTD MICON-BT.
A	71	Times	G73	Using KAIJO DENKI co., LTD Echo sounder.
B	134	Times	M06	Observed every three hours.
B	60	Times	D72	Using wave recorder, OKI DENKI co., LTD WX-1008.
B	18	Times	M90	Using A.I.R.co., TETHER SONDE MODEL TS-3A-3P and ADAS TETHER SONDE BALOON.

**Reference No. :** 97009  
**Restrict Data :** No  
**Ship Name :** SEIFU MARU  
**Ship Type :** Research Vessel  
**Cruise No./Name :** 97-01

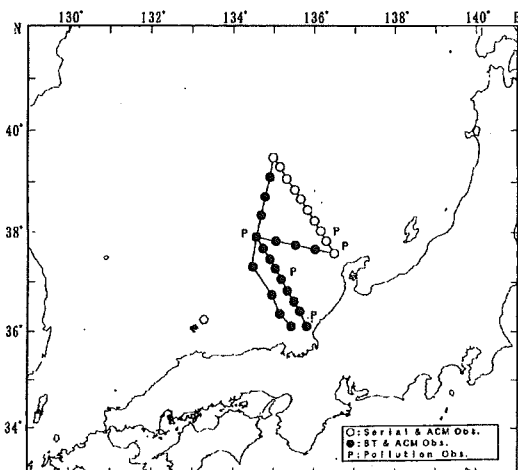
**Cruise Period :** 14/01/1997 to 27/02/1997  
**Port of Departure :** Maizuru  
**Port of Return :** Maizuru  
**Responsible Laboratory :** Maizuru Marine Observatory, JMA  
**Chief Scientist(s) :** Mr. N. Sato Maizuru Marine Observatory, JMA  
**General Ocean Area(s) :** Japan Sea  
**Geographic Coverage :** 131, 167  
**Principal Investigators :**  
 A; Mr. S. Kawae Maizuru Marine Observatory, JMA  
 B; Mr. N. Sato Maizuru Marine Observatory, JMA  
 C; Mr. N. Obata Maizuru Marine Observatory, JMA  
 D; Mr. H. Jobashi Climate and Marine Department, JMA

**Objectives and Brief Narrative of Cruise :**

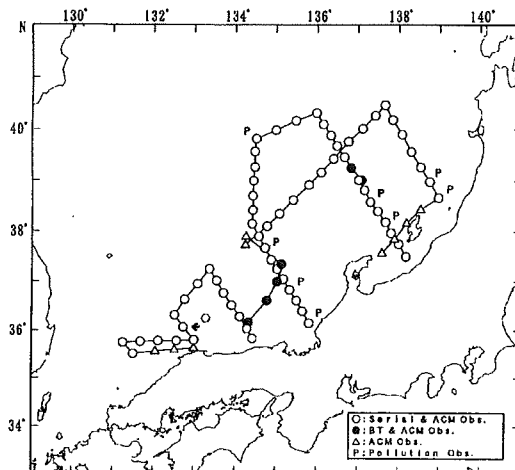
Seasonal observation of marine conditions and monitoring the back-ground marine pollutions.

**Main task**

1. Water sampling for marine pollution analysis (for mercury, cadmium and petroleum residue).
2. Hydrographic observation (physical, chemical and biological).
3. Inspection of ocean data buoy.



Track Chart



Track Chart

**Summary of Measurements and Samples Taken :**

PI	NO	UNITS	DATA TYPE	DESCRIPTION
A	3130	N. Miles	H71	Measurements of near-surface temperature and salinity using T.S.G.
A, B	17	Stations	H09, H21, H22 H24, H25	Using Neil-Brown CTD with Rosette sampler System.
A	74	Stations	H10	Using Neil-Brown CTD.
A	34	Stations	H16	Using Secchi Disk.
A	78	Stations	D71	Using Acoustic Current Meter (FURUNO).
A	204	Times	D72	Using microwave or Tucker wave gauge.
B	17	Stations	B02	Using Neil-Brown CTD with Rosette sampler System.
B	3	Stations	H28	Using Neil-Brown CTD with Rosette sampler System.
B	6	Stations	H31	Sampling for measurement of grass Beta Radio activity.
B	3	Sampler	P02	Using Neil-Brown CTD with Rosette sampler System.
B	13	Samples	P03	Using surface water sampling.
B	3	Samples	P03	Using Neuston Net.
A	23	Days	P90	Oil slicks and floating pollutants (Daytime only).
A	9	Stations	B08	Using Surface water sampling.

A	8	Stations	B09	Collected by using Norpac Net.
A	25	Drops	H13	X-BT drops with T6 type probe.
C	41	Ascents	M01	Using VAISALA Dig coda MW2 system and VAISALA RS80-15N Radio Sondes.
C	204	Times	M06	According to "WMO International Codes".
A	74	Stations	G73	Using echo sounder (KAIJO).

Reference No. : 97010  
 Restrict Data : No  
 Ship Name : SEIFU MARU  
 Ship Type : Research Vessel  
 Cruise No./Name : 97-04  
 Cruise Period : 25/04/1997 to 26/05/1997  
 Port of Departure : Maizuru  
 Port of Return : Maizuru  
 Responsible Laboratory : Maizuru Marine Observatory, JMA  
 Chief Scientist(s) : Mr. N. Nagai Maizuru Marine Observatory, JMA  
 General Ocean Area(s) : Japan Sea  
 Geographic Coverage : 131, 167  
 Principal Investigators :

- A; Mr. S. Kawae Maizuru Marine Observatory, JMA
- B; Mr. N. Sato Maizuru Marine Observatory, JMA
- C; Mr. N. Obata Maizuru Marine Observatory, JMA
- D; Mr. T. Sakai Climate and Marine Department, JMA

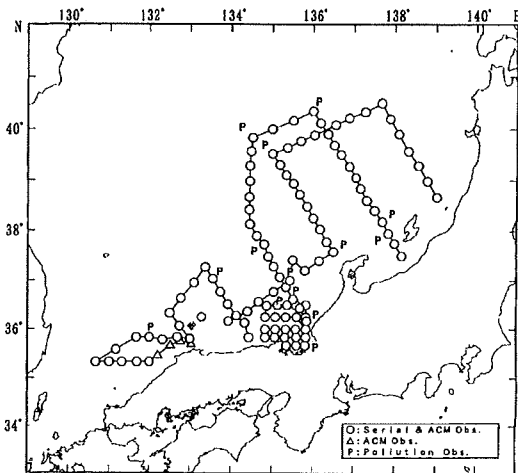
**Objectives and Brief Narrative of Cruise :**

Seasonal observation of marine conditions and monitoring the back-ground marine pollutions.

**Main task**

Water sampling for marine pollution analysis (for mercury, cadmium and petroleum residue).

2. Hydrographic observation (physical, chemical and biological).
3. Inspection of ocean data buoy



Track Chart

Seifu Maru (Apr. 26~May 26)

**Summary of Measurements and Samples Taken :**

PI	NO	UNITS	DATA TYPE	DESCRIPTION
A	2443	N. Miles	H71	Measurements of near-surface temperature and salinity with a thermosalinogrph.
A, B	23	Stations	H09, H21	Using Neil-Brown CTD with Rosette sampler System.
A	108	Stations	H10	Using Neil-Brown CTD.
A	52	Stations	H16	Using Secchi Disk.
A	112	Stations	D71	Using Acoustic Current Meter (FURUNO).
C	156	Times	D72	Using microwave or Tucker wave gauge.
B	3	Stations	H28	Using Neil-Brown CTD with Rosette sampler System.
B	17	Stations	B02, H22 H24, H25	Using Neil-Brown CTD with Rosette sampler System.
B	9	Stations	B08	Surface water sampling.
B	9	Stations	B09	Collected by Norpac Net.
D	3	Samples	P02	Using Neil-Brown CTD with Rosette sampler System.
D	6	Samples	P03	Surface water for petroleum Hydrocarbons concentrations.
B	9	Samples	P03	Using Neuston Net (particulate petroleum residues).
D	9	Samples	P03	Using Neuston Net (particulate petroleum residues).
B	19	Days	P90	Oil slicks and floating pollutants (Daytime only).
D	19	Days	P90	Oil slicks and floating pollutants (Daytime only).
C	6	Ascents	M01	Using VAISALA Digcoda MW2 system and VAISALA RS80-15N Radio Sondes.
C	453	Times	M06	According to "WMO International Codes".



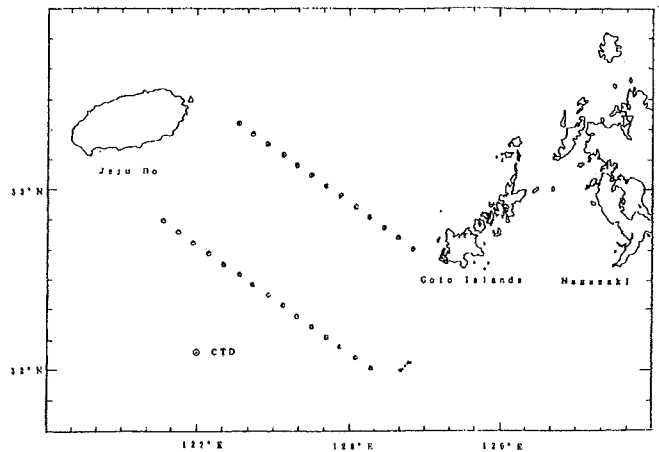
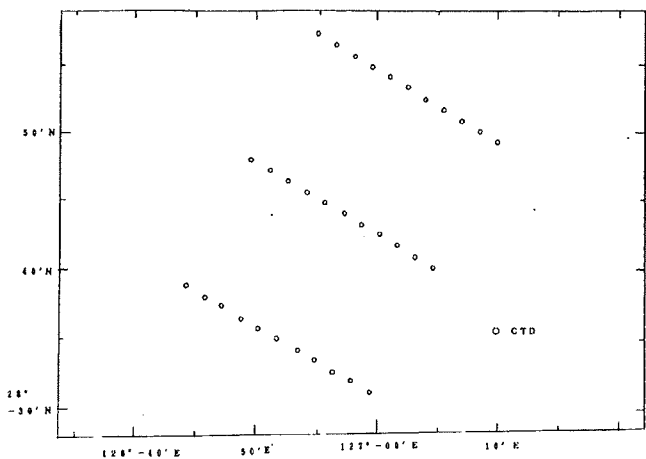
Reference No. : 97011  
 Restrict Data : In Part  
 Ship Name : KAKUYO MARU  
 Ship Type : Training Vessel  
 Cruise No./Name : Voyage No.123  
 Cruise Period : 24/05/1997 to 02/06/1997  
 Port of Departure : Nagasaki  
 Port of Return : Nagasaki  
 Responsible Laboratory : Faculty of Fisheries, Nagasaki University  
 Chief Scientist(s) : T. Matsuno Faculty of Fisheries, Nagasaki University  
 General Ocean Area(s) : East China Sea  
 Specific Areas :  
 1. Around continental shelf break west of Amami Island  
 2. Between Gotoh and Cheju Islands  
 Geographic Coverage : 96, 132  
 Principal Investigators :  
 A; T. Matsuno Faculty of Fisheries, Nagasaki University

**Objectives and Brief Narrative of Cruise :**

This cruise was officially arranged for training of students.  
 Oceanographic observations were carried out during the training cruise.  
 Main purpose of the observation consists of two parts.  
 One is to find some evidence of intrusion of shelf water into the Kuroshio around the shelf break in the East China Sea.  
 The other is to obtain detailed structure of the Tsushima Current Between Gotoh and Cheju Islands west of Kyusyu.

**Summary of Measurements and Samples Taken :**

PI	NO	UNITS	DATA TYPE	DESCRIPTION
A	66	Stations	H10	Using Neil-Brown Mark-3B CTD.
A	66	Stations	P01	Vertical profile of turbidity. MTB-8M, Alec Elec.
A	28	Stations	H10	Using Neil-Brown Mark-3B CTD.
A	28	Stations	P01	Vertical profile of turbidity. MTB-8M, Alec Elec.



Reference No. : 97012  
 Restrict Data : In Part  
 Ship Name : KAKUYO MARU  
 Ship Type : Training Vessel  
 Cruise No./Name : Voyage No.125  
 Cruise Period : 24/06/1997 to 03/07/1997

*Port of Departure* : Nagasaki  
*Port of Return* : Nagasaki  
*Responsible Laboratory* : Faculty of Fisheries, Nagasaki University  
*Chief Scientist(s)* : Mr. H. Akaeda Faculty of Fisheries, Nagasaki University  
*General Ocean Area(s)* : East China Sea  
*Specific Areas* : Amami-oshima  
*Geographic Coverage* : 96  
*Principal Investigators* :  
 A; Mr. H. Suzuki Faculty of Fisheries, Nagasaki University  
 B; Mr. H. Akaeda Faculty of Fisheries, Nagasaki University

**Objectives and Brief Narrative of Cruise :**

Objectives and brief narrative of cruise.

Sampling of toxic goby, puffer, crab, and so on in subtropical islands for studies on marine toxins.

**Summary of Measurements and Samples Taken :**

PI	NO	UNITS	DATA TYPE	DESCRIPTION
B	3		B19	Puffer (Hari-senbon)
B	1		B19	Puffer (Sennin-fugu)
B	2		B19	Puffer (Saba-fugu)
B	2		B18	Crab (Subesube-manjyu-gani)
B	1		B20	Snail (Imogai)

*Reference No.* : 97013  
*Restrict Data* : Yes  
*Ship Name* : KAKUYO MARU  
*Ship Type* : Training Vessel  
*Cruise No./Name* : Voyage No.124  
*Cruise Period* : 08/06/1997 to 21/06/1997  
*Port of Departure* : Nagasaki  
*Port of Return* : Nagasaki  
*Responsible Laboratory* : Res. Inst. for Applied Mechanics, Kyushu University  
*Chief Scientist(s)* : Dr. J. H. Yoon Res. Inst. for Applied Mechanics, Kyushu University  
*General Ocean Area(s)* : Japan Sea  
*Specific Areas* : The Yamato Basin, Eastern Tsushima Basin, The continental shelf region off the Wakasa Bay  
*Geographic Coverage* : 131  
*Project Name* : CREAMS  
*Coordinating Body* : Res. Inst. for Applied Mechanics, Kyushu

**Principal Investigators :**

A; Dr. J. H. Yoon Res. Inst. for Applied Mechanics, Kyushu University  
 B; Dr. M. Takematsu Res. Inst. for Applied Mechanics, Kyushu University  
 C; Dr. W. Koterayama Res. Inst. for Applied Mechanics, Kyushu University  
 D; Mr. H. Katayama Res. Inst. for Applied Mechanics, Kyushu University

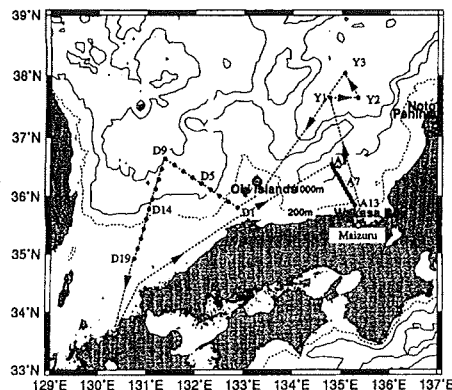
**Objectives and Brief Narrative of Cruise :**

A. Observation of the structure of the nearshore branch of the Tsushima Current in the continental shelf region between Oki Islands and Noto Peninsula.

B. Observation of the current structure in the Yamato Basin.

C. Observation of the water mass distribution in the eastern Part of the Tsushima Basin.

Main task



1 ADCP measurement in the continental shelf region off Wakasa Bay.

2. Deploy the moored current meter in the Yamato Basin.

*Moorings, Bottom Mounted Gear and Drifting Systems :*

PI	LAT.	LON.	DATA TYPE	DESCRIPTION
A	36.18N	134.58E	D01, D71	Deployed a moored current meter system, Jun. 11 1997.
A	36.14N	135.00E	D01, D71	Deployed a moored current meter system, Jun. 11 1997.
A	36.04N	135.07E	D01, D71	Deployed a moored current meter system, Jun. 11 1997.
B	37.38N	134.46E	D01	Deployed a moored current meter system, Jun. 16 1997.
B	37.38N	135.21E	D01	Deployed a moored current meter system, Jun. 16 1997.
B	38.02N	135.04E	D01	Deployed a moored current meter system, Jun. 17 1997.

*Summary of Measurements and Samples Taken :*

PI	NO	UNITS	DATA TYPE	DESCRIPTION
A	13	Stations	H10	Using Neil-Brown Mark-3B CTD.
B	3	Stations	H10	Using Neil-Brown Mark-3B CTD.
C	350	Miles	D71	ADCP (Towed and Furuno Acoustic Current meter).
D	1000	Miles	H74	Measure CO2 by taking the surface water used for General service pump.

*Reference No. :* 97014  
*Restrict Data :* No  
*Ship Name :* SHOYO  
*Ship Type :* Survey Vessel  
*Cruise No./Name :* 970019 / KER  
*Cruise Period :* 04/06/1997 to 03/07/1997  
*Port of Departure :* Tokyo  
*Port of Return :* Tokyo  
*Responsible Laboratory :* Hydrographic Department, MSA  
*Chief Scientist(s) :* Mr. S. Ikeda Hydrographic Department, MSA  
*General Ocean Area(s) :* North Pacific Ocean, Philippine Sea  
*Geographic Coverage :* 23, 59, 95, 131  
*Project Name :* KER  
*Principal Investigators :*  
A; Mr. S. Ikeda Hydrographic Department, MSA  
B; Mr. K. Oda Hydrographic Department, MSA

*Objectives and Brief Narrative of Cruise :*

Object: As a part of Kuroshio EXPLOITATION AND UTILIZATION RESEARCH(KER), this observation aims to investigate the structure of ocean circulation at the subtropical region in the western pacific ocean.

(A) Surface current observation by ADCP.

(B) Measurement of the density of carbonic acid gas.

(C) Measurement of water temperature at surface layer by XBT.

(D) Measurement of water temperature and salinity by using CTD system and chemical analysis of sea water for nutrient matter.

(E) Wave observation by shipborne analyzer.

(F) Mooring systems deployment of under water.

(G) Deployment of ARGOS buoys (Drifting buoys).

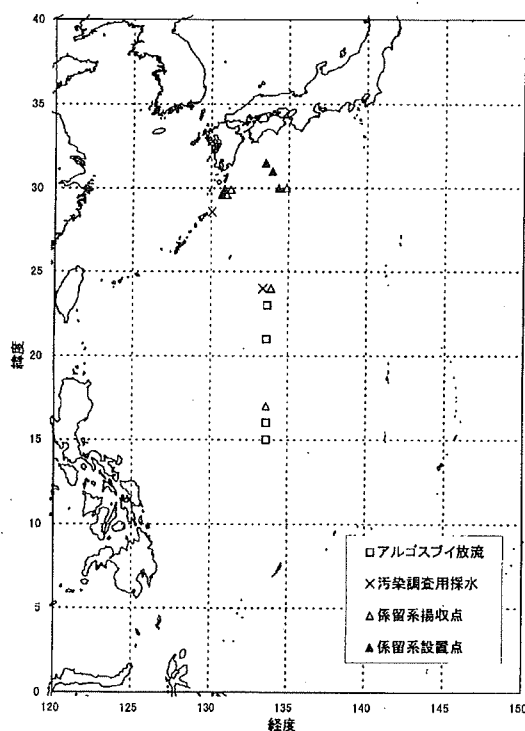
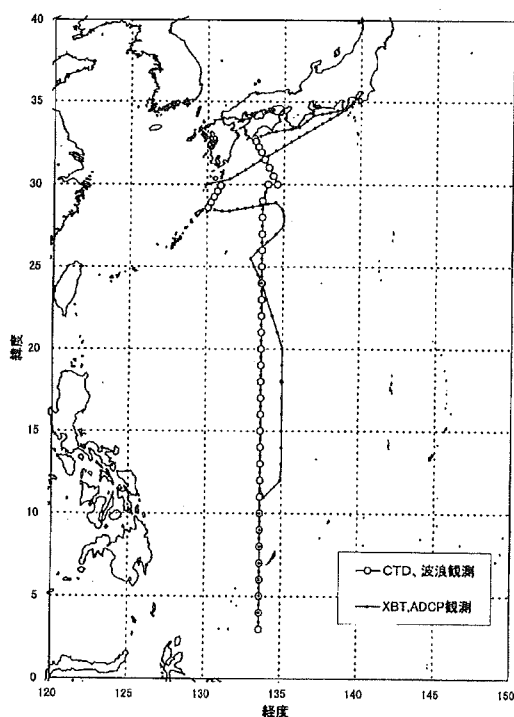
*Moorings, Bottom Mounted Gear and Drifting Systems :*

PI	LAT.	LON.	DATA TYPE	DESCRIPTION
A	23.00N	133.42E	D05	Deployed a drifting buoy June 11 1997.
A	21.00N	133.40E	D05	Deployed a drifting buoy June 11 1997.
A	16.01N	133.40E	D05	Deployed a drifting buoy June 13 1997.

A	15.01N	133.40E	D05	Deployed a drifting buoy June 11 1997.
A	31.31N	133.48E	D09	Mooring system deployment June 7 1997.
A	31.00N	134.04E	D09	Mooring system deployment June 7 1997.
A	30.00N	134.36E	D09	Mooring system deployment June 8 1997.
A	29.36N	130.38E	D01	Mooring system deployment June 30 1997.
A	29.55N	130.49E	D71	Mooring system deployment June 30 1997.

Summary of Measurements and Samples Taken :

PI	NO	UNITS	DATA TYPE	DESCRIPTION
A		continuous	D71	Surface current observation by ADCP.
A	97	Drops	H13	XBT Drops with T6 type probes.
A	41	Stations	H09, H21, H22 H26, H28	Deep cast using Rosette Sampler with reversing thermometers partly.
A	41	Stations	H10	Using Sea Bird SBE 9plus CTD (upper 6500db)
A	41	Stations	H21, H22 H26, H28	Surface temperature measurement and surface water sampling for chemical analysis.
A	41	Stations	D72	Wave observation using shipborne wave analyzer.
B	2	Samples	D02, D03, D04	All samples of surface for trace metals (Cadmium, Mercury, Copper, and Zinc), petroleum oil.
A		continuous	G74	Submarine topographic survey along the cruise line.



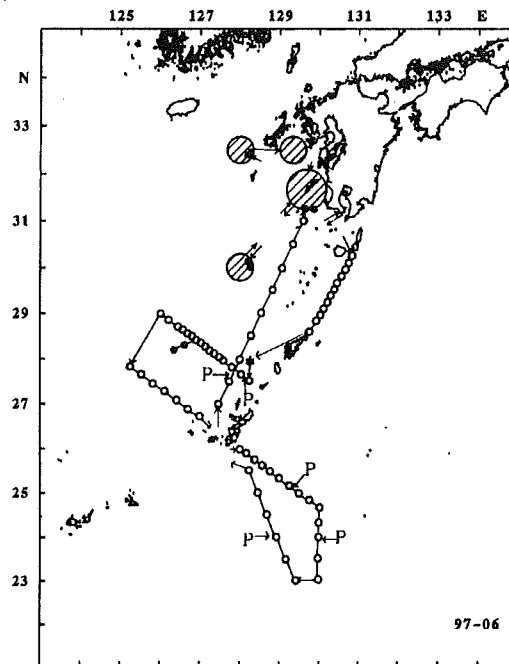
Reference No. : 97015  
 Restrict Data : No  
 Ship Name : CHOFU MARU  
 Ship Type : Observation Ship  
 Cruise No./Name : 97-06  
 Cruise Period : 13/06/1997 to 02/08/1997  
 Port of Departure : Nagasaki  
 Port of Return : Nagasaki  
 Responsible Laboratory : Nagasaki Marine Observatory, JMA

Chief Scientist(s) : Mr. K. Fujii Nagasaki Marine Observatory, JMA  
 General Ocean Area(s) : East China Sea, Philippine Sea  
 Geographic Coverage : 95, 96, 130, 131  
 Project Name : KER, WESTPAC, IGOSS, MARPOLMON  
 Principal Investigators :

A; Mr. S. Wakaki Nagasaki Marine Observatory, JMA  
 B; Mr. K. Kimura Nagasaki Marine Observatory, JMA  
 C; Mr. M. Iwamoto Nagasaki Marine Observatory, JMA  
 D; Mr. K. Ashimine Nagasaki Marine Observatory, JMA

**Objectives and Brief Narrative of Cruise :**

A seasonal oceanographical observation (physical, chemical and biology) in the East China Sea and the Philippine Sea in summer.  
 An observation of marine pollutant to monitor background of marine pollution.  
 Oceanographical and maritime meteorological observations for the verification of buoy robot observation.  
 Verification of ocean wave forecast.  
 Improvement of the quality on the sea condition forecast and warning.  
 Watch the heavy rain associated with Baiu front for forecast and warning.



**Summary of Measurements and Samples Taken :**

PI	NO	UNITS	DATA TYPE	DESCRIPTION
A	64	Stations	H10	Using Sea-Bird Electronics, Inc. 911 plus CTD System.
A	35	Days	H11	Using Tsurumi-Seiki Co., thermosalinograph.
A	35	Days	D71	Using Furuno co., ADCM.
A	1	Station	H13	Using Tsurumi-Seiki co., Seamate BT.
A	7	Drops	H13	XBT drops with T6 Type probes.
B	31	Stations	H21	Using Rosette sampler.
B	21	Stations	H22, H24, H25	Using Rosette sampler.
B	3	Stations	H23, H28	Using Rosette sampler.
B	2	Stations	H31	Using Rosette sampler.
B	2	Stations	P02	Using Rosette sampler.
B	2	Stations	P03	Using glass jar.
B	5	Stations	P90	Using Neuston net.
C	8	Stations	B02	Using Rosette sampler.
C	8	Stations	B08	Using stainless steel water bucket.
C	8	Stations	B09	Using Norpac net.
D	34	Days	M06	Using cylindrical resonator digital barometer, platinum resistance thermometer, lithium chloride dew-point hygrometer and with vane and fan-anemograph.
D	74	Times	M01	Automated shipboard aerological observation system by VAISALA.
D	722	Stations	D72	Using Micro-wave wavemeter.
D	34	Days	M02	Using Pyranometer.
D	16	Days	M02	Using Net exchange.

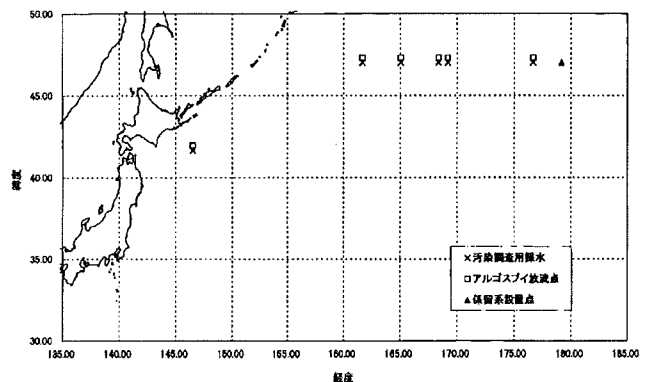
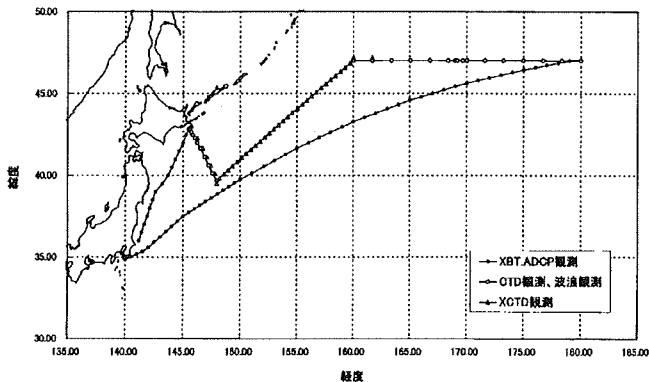
Reference No. : 97016  
 Restrict Data : No  
 Ship Name : SHOYO  
 Ship Type : Survey Vessel

Cruise No./Name : 970027/SAGE  
 Cruise Period : 06/08/1997 to 25/08/1997  
 Port of Departure : Tokyo  
 Port of Return : Tokyo  
 Responsible Laboratory : Hydrographic Department, MSA  
 Chief Scientist(s) : Mr. H. Nakamura Hydrographic Department, MSA  
 General Ocean Area(s) : North Pacific Ocean  
 Geographic Coverage : 129, 130, 163, 164, 165, 166  
 Project Name : SAGE  
 Principal Investigators :  
 A; Dr. M. Fukasawa Tokai University  
 B; Mr. H. Nakamura Hydrographic Department, MSA  
 C; Mr. K. Oda Hydrographic Department, MSA

**Objectives and Brief Narrative of Cruise :**

Object: As a part of Sub Arctic Gyre Experiment (SAGE), this observation aims to investigate the structure of ocean circulation at the subarctic region in the northern pacific ocean.

- (A) Surface current observation by ADCP.
- (B) Measurement of the density of carbonic acid gas.
- (C) Measurement of water temperature at surface layer by XBT.
- (D) Measurement of water temperature and salinity by using CTD system and chemical analysis of sea water for nutrient matter.
- (E) Wave observation by shipborne analyzer.
- (F) Mooring systems deployment of under water.
- (G) Deployment of ARGOS buoys (Drifting buoys).
- (H) Measurement of water temperature and salinity by using XCTD.



**Moorings, Bottom Mounted Gear and Drifting Systems :**

PI	LAT.	LON.	DATA TYPE	DESCRIPTION
A	47.00N	179.10E	D01	Mooring system deployment, Aug. 13 1997.
B	47.00N	179.58E	D05	Deployed a drifting buoy, Aug. 13 1997.
B	47.00N	176.41E	D05	Deployed a drifting buoy, Aug. 14 1997.
B	47.00N	173.13E	D05	Deployed a drifting buoy, Aug. 14 1997.
B	47.00N	169.59E	D05	Deployed a drifting buoy, Aug. 15 1997.
B	46.59N	165.03E	D05	Deployed a drifting buoy, Aug. 16 1997.
B	46.59N	160.02E	D05	Deployed a drifting buoy, Aug. 18 1997.
B	41.40N	146.33E	D05	Deployed a drifting buoy, Aug. 21 1997.

**Summary of Measurements and Samples Taken :**

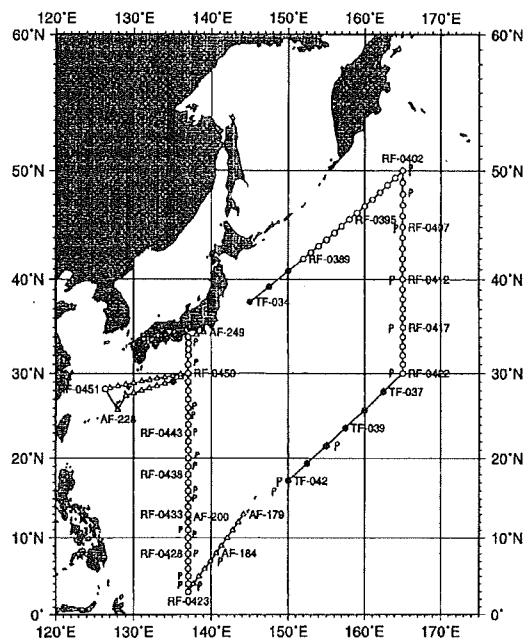
PI	NO	UNITS	DATA TYPE	DESCRIPTION
B		continuous	D71	Surface current observation by ADCP.

B	65	Drops	H13	XBT Drops with T6 type probes.
B	27	Stations	H09, H21	Deep cast using Rosette Sampler with reversing.
B	27	Stations	H10	Using Sea Bird SBE 9plus CTD (upper 6500db).
B	27	Stations	H21, H22	Surface temperature measurement and surface.
B	27	Stations	D72	Wave observation using shipborne wave analyzer.
B		continuous	G74	Submarine topographic survey along the cruise line.
C	7	Samples	D02, D03	All samples of surface for trace metal (cadmium).

Reference No. : 97017  
 Restrict Data : No  
 Ship Name : RYOFU MARU  
 Ship Type : Research Vessel  
 Cruise No./Name : 97-05  
 Cruise Period : 30/05/1997 to 22/07/1997  
 Port of Departure : Tokyo  
 Port of Return : Tokyo  
 Responsible Laboratory : Climate and Marine Department, JMA  
 Chief Scientist(s) : N. Kubo Climate and Marine Department, JMA  
 General Ocean Area(s) : North Pacific Ocean  
 Geographic Coverage : 23, 57, 58, 59, 92, 93, 95, 128, 131, 164  
 Project Name : IGOSS, MARPOLMON, WESTPAC  
 Principal Investigators :  
 A; E. Kamihira Climate and Marine Department, JMA  
 B; T. Sakai Climate and Marine Department, JMA  
 C; T. Kato Climate and Marine Department, JMA

**Objectives and Brief Narrative of Cruise :**

- A routine oceanographic observation (physical, chemical, biological)
- a) Seasonal observation of marine condition.
  - b) Monitoring background marine pollution.
- Recovery mooring current meter systems.  
 Sea water sampling for radioactivity measurement.



**Moorings, Bottom Mounted Gear and Drifting Systems :**

PI	LAT.	LON.	DATA TYPE	DESCRIPTION
A	12.50N	137.00E	D01	Recovered four recording current meters (AANDERAA Instrument RCM-8) on June 29 1997. Setting depth are about 500, 700, 2500, 4500m.

**Summary of Measurements and Samples Taken :**

PI	NO	UNITS	DATA TYPE	DESCRIPTION
A	9113	NM	H71	Continuous sea surface temperature and salinity recording.
A	68	Stations	H10	Using FSI-ICTD.
A	114	Stations	D71	Using R.D Instrument Acoustic Doppler Current Profiler.
A	79	Stations	G73	Using NEC Echo sounder.
A	37	Stations	H16	Using Secchi Disk.
A	11	Drops	H13	X-BT drops with T-6 type probes.
A	65	Stations	H09, H21	Using Rosette Sampler.
A	17	Stations	H09, H22, H24	Using Rosette Sampler.

			H25, H26	
A	19	Stations	B02	Using Rosette Sampler.
A	11, 12	Stations	B08, B09	Using bucket (B08), NORPAC net (B09).
A	8	Stations	H31	Sampling for measurement of Gross Beta Radioactivity.
B	9113	NM	H74, M71	CO2 and CH4 concentrations in air and sea water.
B	12	Stations	P02, P03	Heavy metals (P02), Dissolved Hydrocarbons (P03).
B	16	Stations	P03	Using Neuston Net.
A	4	Stations	H28	Using Rosette Sampler.
B	4	Stations	H74	Total inorganic carbon concentration.
C	337	Times	M06	Observed every 3 hours.
B	33	Days	P90	Oil slicks and floating pollutants (Daytime only).
C	46	Ascents	M01	Using Shipboard Automatic Radio-Sonde System.

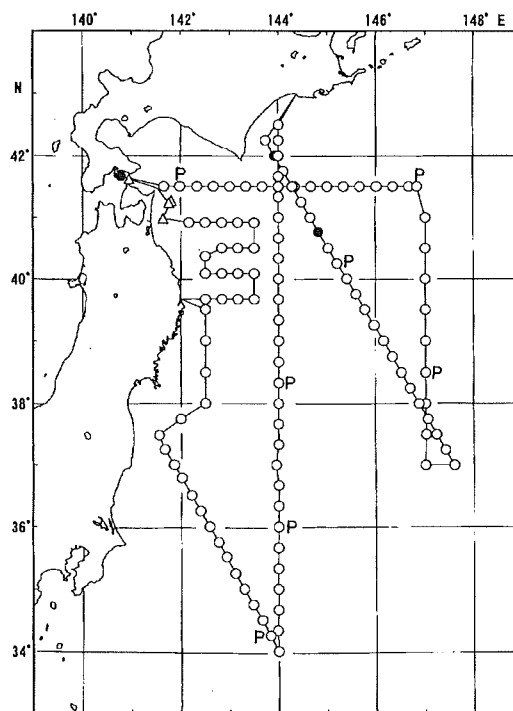
**Reference No. :** 97018  
**Restrict Data :** No  
**Ship Name :** KOFU MARU  
**Ship Type :** Research Vessel  
**Cruise No./Name :** 97-04  
**Cruise Period :** 28/04/1997 to 30/05/1997  
**Port of Departure :** Hakodate  
**Port of Return :** Hakodate  
**Responsible Laboratory :** Hakodate Marine Observatory, JMA  
**Chief Scientist(s) :** M. Inagawa Hakodate Marine Observatory, JMA  
**General Ocean Area(s) :** North Pacific Ocean  
**Geographic Coverage :** 130, 166  
**Project Name :** IGOSS, WESTPAC, MARPOLMON  
**Coordinating Body :** WMO, IOC  
**Principal Investigators :**  
 A; H. Kamiya Hakodate Marine Observatory, JMA  
 B; T. Aizawa Hakodate Marine Observatory, JMA  
 C; T. Sakai Climate and Marine Department, JMA

**Objectives and Brief Narrative of Cruise :**

1. Regular observation of oceanography and marine meteorology.
2. Background marine pollution monitoring.
3. Observation for development of the ocean data assimilation system (COMPASS-K).
4. Observation for the study of seasonal variability and water mass budget of Oyashio off Sanriku.
5. Observation for the study of North Pacific Intermediate Water.
6. Ocean wave sampling for the data of coastal wave recorders.

**Summary of Measurements and Samples Taken :**

PI	NO	UNITS	DATA TYPE	DESCRIPTION
A	2587	NM	H71	Continuous sea surface temperature & salinity recording.
A	108	Stations	H10	Using Neil-Brown CTD.
A	30	Stations	H09, H21, H22 H24, H25, B02	Using Neil-Brown CTD with Roseete sampler.
A	52	Stations	H16	Using Secchi disk (Daytime only).
A	13	Drops	H13	XBT drops with T6 type probes.



Track Chart of KOFU MARU 28 Apr. ~ 30 May, 1997  
 ○ CTD & ACM Obs.  
 ● BT & ACM Obs.  
 △ ACM Obs.  
 P Pollution Obs.

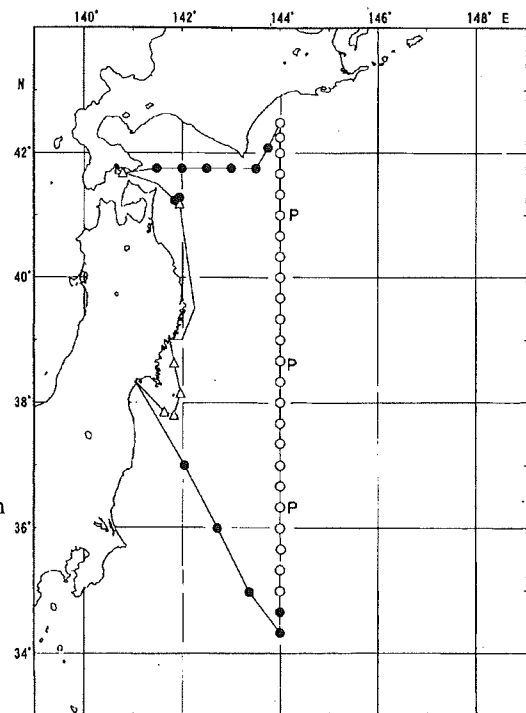


A	116	Stations	D71	Using FURUNO co., Acoustic Current Meter at 0, 50, 100m in depth.
A	11	Stations	H28	Using Neil-Brown CTD with Roseete sampler.
A	6	Stations	B08	Using bucket.
A	6	Stations	B09	Using NORPAC net.
B	146	Times	M06	Observed every three hours.
B	291	Times	M90	Hourly Weather report except M06.
B	15	Ascents	M01	Using VAISALA system.
B	146	Times	D72	Using micro-wave & Tucker wave gauge.
C	2	Samples	P02	Sampling for analysis of heavy metals.
C	2	Samples	P90	Sampling for measurement of petroleum residues.
C	5	Stations	P03	Using Neuston net.
C	11	Days	P90	Oil slicks and floating pollutants observed visually (Daytime only).

**Reference No. :** 97019  
**Restrict Data :** No  
**Ship Name :** KOFU MARU  
**Ship Type :** Research Vessel  
**Cruise No./Name :** 97-06  
**Cruise Period :** 12/06/1997 to 04/07/1997  
**Port of Departure :** Hakodate  
**Port of Return :** Hakodate  
**Responsible Laboratory :** Hakodate Marine Observatory, JMA  
**Chief Scientist(s) :** T. Aizawa Hakodate Marine Observatory, JMA  
**General Ocean Area(s) :** North Pacific Ocean  
**Specific Areas :** 130, 166  
**Geographic Coverage :** IGOSS, WESTPAC, MARPOLMON  
**Project Name :** WMO, IOC  
**Principal Investigators :**  
 A; H. Kamiya Hakodate Marine Observatory, JMA  
 B; T. Aizawa Hakodate Marine Observatory, JMA  
 C; T. Sakai Climate and Marine Department, JMA

**Objectives and Brief Narrative of Cruise :**

1. Regular observation of oceanography and marine meteorology.
2. Observations for development of the ocean data assimilation system (COMPASS-K).
3. Maritime meteorological observations of YAMASE event off Sanriku.



Track Chart of KOFU MARU 12 June ~ 4 July, 1997

○ CTD & ACM Obs.  
 ● ST & ACM Obs.  
 △ ACM Obs.  
 P Pollution Obs.

**Summary of Measurements and Samples Taken :**

PI	NO	UNITS	DATA TYPE	DESCRIPTION
A	1269	NM	H71	Continuous sea surface temperature & salinity recording.
A	24	Stations	H10	Using Neil-Brown CTD.
A	12	Stations	H09, H21, H22 H24, H25, B02	Using Neil-Brown CTD with Roseete sampler.
A	13	Stations	H16	Using Secchi disk (Daytime only).
A	11	Drops	H13	XBT drops with T6 type probes.

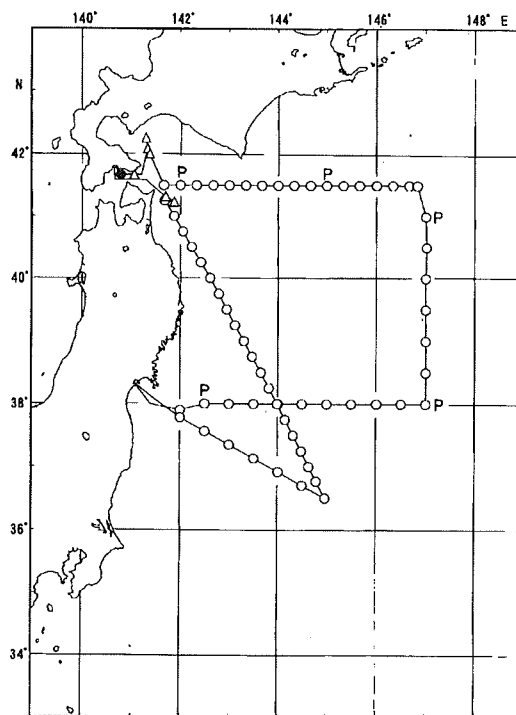
A	2	Stations	H13	Using Micon BT.
A	44	Stations	D71	Using FURUNO co., Acoustic Current Meter at 0, 50, 100m in depth.
A	4	Stations	H28	Using Neil-Brown CTD with Roseete sampler.
B	98	Times	M06	Observed every three hours.
B	199	Times	M90	Hourly Weather report except M06.
B	18	Ascents	M01	Using VAISALA system.
B	102	Times	D72	Using micro-wave & Tucker wave gauge.
C	3	Stations	P03	Using Neuston net.
C	6	Days	P90	Oil slicks and floating pollutants observed visually (Daytime only).

Reference No. : 97020  
 Restrict Data : No  
 Ship Name : KOFU MARU  
 Ship Type : Research Vessel  
 Cruise No./Name : 97-07  
 Cruise Period : 14/07/1997 to 07/08/1997  
 Port of Departure : Hakodate  
 Port of Return : Hakodate  
 Responsible Laboratory : Hakodate Marine Observatory, JMA  
 Chief Scientist(s) : H. Kamiya Hakodate Marine Observatory, JMA  
 General Ocean Area(s) : North Pacific Ocean  
 Geographic Coverage : 130, 166  
 Project Name : IGOSS, WESTPAC, MARPOLMON  
 Coordinating Body : WMO, IOC  
 Principal Investigators :

A; H. Kamiya Hakodate Marine Observatory, JMA  
 B; T. Aizawa Hakodate Marine Observatory, JMA  
 C; T. Sakai Climate and Marine Department, JMA

**Objectives and Brief Narrative of Cruise :**

1. Regular observation of oceanography and marine meteorology.
2. Background marine pollution monitoring.
3. Sea water sampling for measurement of radioactivity.
4. Observation for development of the ocean data assimilation system (COMPASS-K).
5. Observations for the study of seasonal variability and water mass budget of Oyashio off Sanriku.
6. Ocean wave sampling for the data of coastal wave recorders.



Track Chart of KOFU MARU 14 July ~ 7 Aug., 1997

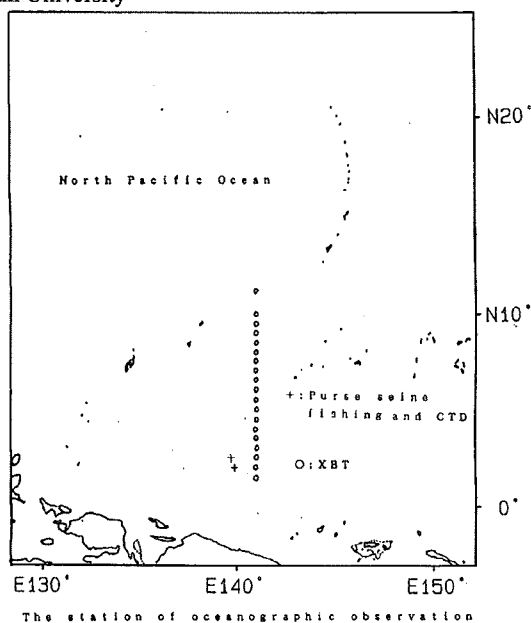
○ CTD & ACW Obs.  
 ● BT & ACW Obs.  
 △ ACW Obs.  
 P Pollution Obs.

**Summary of Measurements and Samples Taken :**

PI	NO	UNITS	DATA TYPE	DESCRIPTION
A	1724	NM	H71	Continuous sea surface temperature & salinity recording.
A	60	Stations	H10	Using Neil-Brown CTD.
A	14	Stations	H09, H21, H22	Using Neil-Brown CTD with Roseete sampler. H24, H25, B02
A	30	Stations	H16	Using Secchi disk (Daytime only).
A	1	Drops	H71	XBT drops with T6 type probes.
A	67	Stations	D71	Using FURUNO co., Acoustic Current Meter at 0, 50, 100m in depth.
A	5	Stations	H28	Using Neil-Brown CTD with Roseete sampler.
A	6	Stations	B08	Using bucket.

A	6	Stations	B09	Using NORPAC net.
B	106	Times	M06	Observed every three hours.
B	291	Times	M90	Hourly Weather report except M06.
B	10	Ascents	M01	Using VAISALA system.
B	193	Times	D72	Using micro-wave & Tucker wave gauge.
C	2	Samples	P02	Sampling for analysis of heavy metals.
C	2	Samples	P90	Sampling for measurement of petroleum residues.
C	5	Stations	P03	Using Neuston net.
C	5	Days	P90	Oil slicks and floating pollutants observed visually (Daytime only).
A	2	Samples	H31	Sampling for measurement of Total beta radioactivity.

Reference No. : 97021  
 Restrict Data : No  
 Ship Name : KAKUYO MARU  
 Ship Type : Training Ship  
 Cruise No./Name : Voyage No.126  
 Cruise Period : 12/07/1997 to 11/08/1997  
 Port of Departure : Nagasaki  
 Port of Return : Nagasaki  
 Responsible Laboratory : Faculty of Fisheries, Nagasaki University  
 Chief Scientist(s) : Y. Akishige Faculty of Fisheries, Nagasaki University  
 General Ocean Area(s) : North Pacific Ocean  
 Geographic Coverage : 22, 23, 58  
 Principal Investigators :  
 A; Y. Akishige Faculty of Fisheries, Nagasaki University



**Objectives and Brief Narrative of Cruise :**

Main task

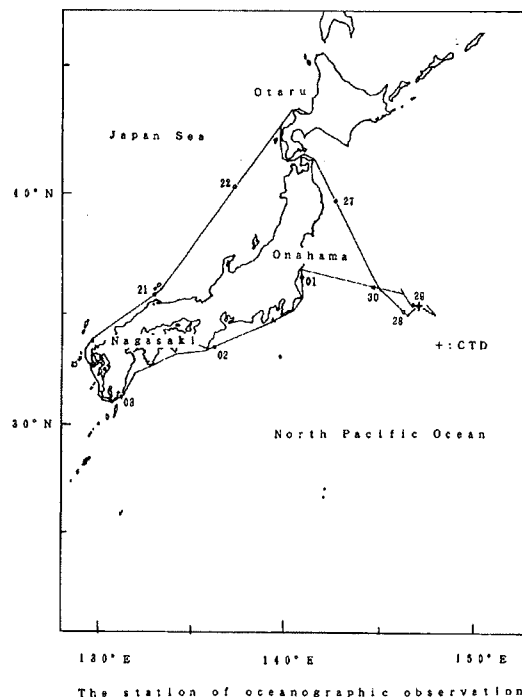
1. Training of navigation.
2. Training operations of purse seine fishing.
3. Oceanographic observation.

**Summary of Measurements and Samples Taken :**

PI	NO	UNITS	DATA TYPE	DESCRIPTION
A	2	Stations	H10	Using Neil-Brown Mark-3B CTD (Upper 1000m).
A	19	Drops	H13	XBT drops with T6 type probes.

Reference No. : 97022  
 Restrict Data : No  
 Ship Name : KAKUYO MARU  
 Ship Type : Training Ship  
 Cruise No./Name : Voyage No.127  
 Cruise Period : 20/08/1997 to 04/09/1997  
 Port of Departure : Nagasaki  
 Port of Return : Nagasaki  
 Responsible Laboratory : Faculty of Fisheries, Nagasaki University

Chief Scientist(s) : Y. Akishige Faculty of Fisheries, Nagasaki University  
 General Ocean Area(s) : North Pacific Ocean  
 Geographic Coverage : 130  
 Principal Investigators :  
 A; Y. Akishige Faculty of Fisheries, Nagasaki University



**Objectives and Brief Narrative of Cruise :**

Main task

1. Training of navigation.
2. Training operations of purse seine fishing.
3. Oceanographic observation.

**Summary of Measurements and Samples Taken :**

PI	NO	UNITS	DATA TYPE	DESCRIPTION
A	1	Station	H10	Using Neil-Brown Mark-3B CTD (Upper 1000m).

Reference No. : 97023  
 Restrict Data : No  
 Ship Name : NAGASAKI MARU  
 Ship Type : Training Ship  
 Cruise No./Name : Voy. 96  
 Cruise Period : 02/04/1997 to 22/04/1997  
 Port of Departure : Nagasaki  
 Port of Return : Nagasaki  
 Responsible Laboratory : Faculty of Fisheries, Nagasaki University  
 Chief Scientist(s) : Y. Takaki Faculty of Fisheries, Nagasaki University  
 General Ocean Area(s) : East China Sea  
 Geographic Coverage : 96, 132  
 Principal Investigators :  
 A; T. Kuno Faculty of Fisheries, Nagasaki University

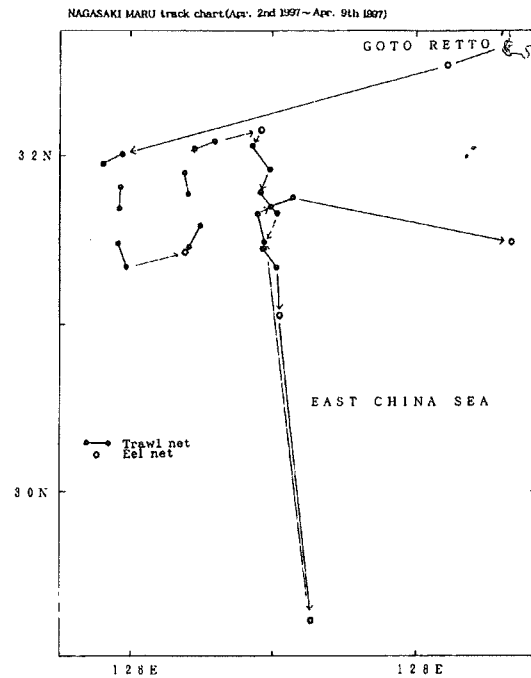
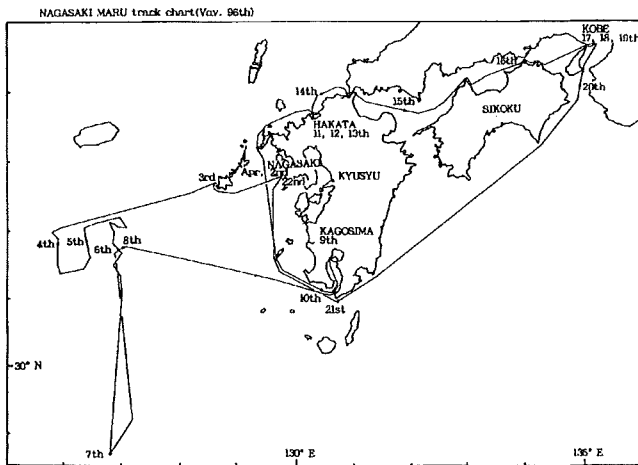
**Objectives and Brief Narrative of Cruise :**

Main task

1. Training of navigation.
2. Training operations of purse seine fishing.
3. Oceanographic observation.

**Summary of Measurements and Samples Taken :**

PI	NO	UNITS	DATA TYPE	DESCRIPTION
A	11	Samples	B65	Sampling of fish by bottom trawl.
A	9	Stations	H10	Using neil brown Mark-3B CTD.
A	7	Samples	B11	Trawl an Eel net.
A	7	Samples	B09	Trawl a Larva net.



Reference No. : 97024  
 Restrict Data : Yes  
 Ship Name : NAGASAKI MARU  
 Ship Type : Training Ship  
 Cruise No./Name : Voy. 97  
 Cruise Period : 06/05/1997 to 05/06/1997  
 Port of Departure : Nagasaki  
 Port of Return : Nagasaki  
 Responsible Laboratory : Faculty of Fisheries, Nagasaki University  
 Chief Scientist(s) : Y. Takaki Faculty of Fisheries, Nagasaki University  
 General Ocean Area(s) : East China Sea, Yellow Sea  
 Geographic Coverage : 96, 132  
 Project Name : The NU NFUP international cooperative marine science studies in the East Sea and Yellow Sea  
 Coordinating Body : National Fisheries University of Pusan  
 Principal Investigators :  
 A; T. Kuno Faculty of Fisheries, Nagasaki University  
 B; H. Kondo Department of Education , Nagasaki University  
 C; L. D. Jae Department of Aquaculture Fisheries , University of Pusan

**Objectives and Brief Narrative of Cruise :**

The Nagasaki University and National Fisheries University of Pusan international cooperative marine science studies in the East China Sea and Yellow Sea.

Cooperative studies will be carried out from 1994 to 1997.

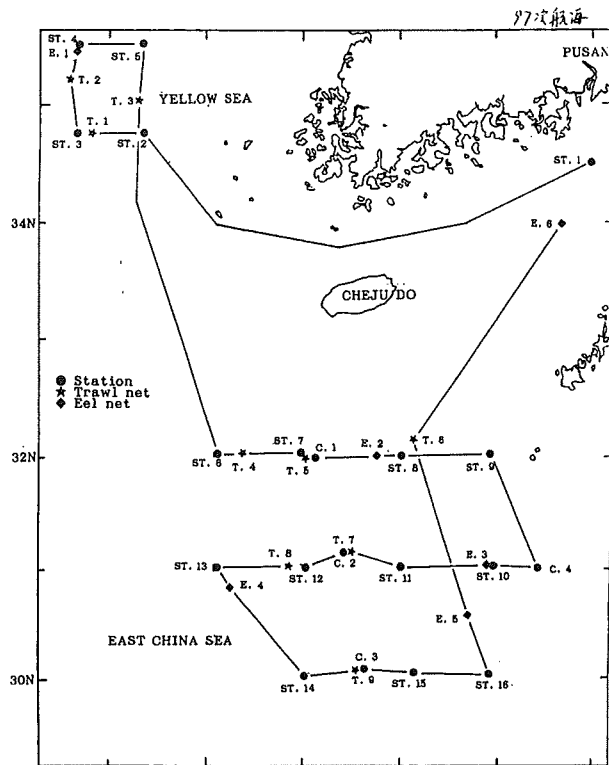
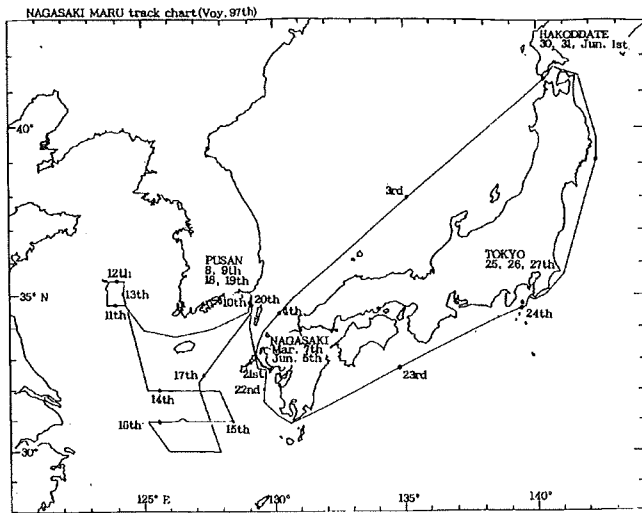
**Main task**

1. Oceanographic observation.
2. Trawl the Eel net and Larva net.
3. Sampling of fish by bottom trawl.

**Summary of Measurements and Samples Taken :**

PI	NO	UNITS	DATA TYPE	DESCRIPTION
A	20	Stations	H10	Using neil Brown Mark-3B CTD.
A	1	Drop	H13	XBT Drop with T10 type probe.
B	6	Samples	G04	Using Piston core sampling.
B	15	Stations	G02	Sampling of mud by Smith McIntyre.

C	9	Samples	B65	Sampling of fish by bottom trawl.
C	12	Stations	B09	Using Bongo net sampling.
A	6	Samples	B11	Trawl an Eel net.
A	6	Samples	B09	Trawl a Larva net.

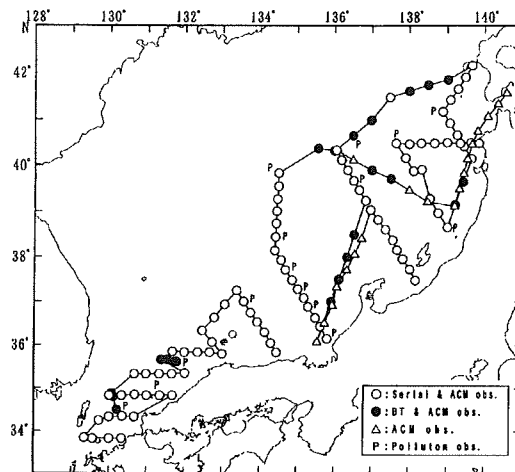


Reference No. : 97025  
 Restrict Data : In Part  
 Ship Name : SEIFU MARU  
 Ship Type : Research Vessel  
 Cruise No./Name : 97-06  
 Cruise Period : 25/06/1997 to 13/08/1997  
 Port of Departure : Maizuru  
 Port of Return : Maizuru  
 Responsible Laboratory : Maizuru Marine Observatory, JMA  
 Chief Scientist(s) : Mr. K. Sakurai Maizuru Marine Observatory, JMA  
 General Ocean Area(s) : Japan Sea  
 Specific Areas : 131, 167  
 Project Name : IGOSS, WESTPAC, MARPOLMON, TOPEX/POSEIDON  
 Coordinating Body : IOC  
 Principal Investigators :  
 A; Mr. S. Kawae Maizuru Marine Observatory, JMA  
 B; Mr. N. Sato Maizuru Marine Observatory, JMA  
 C; Mr. N. Obata Maizuru Marine Observatory, JMA  
 D; Mr. T. Sakai Climate and Marine Department, JMA  
 E; Mr. M. Aoyama Meteorological Research Institute, JMA

**Objectives and Brief Narrative of Cruise :**

A routine oceanographic observation (physical, chemical, biological)  
 a) Seasonal observation of marine condition.

- b) Monitoring background marine pollution.
- Sea water sampling for radioactivity measurement.
- Development of data assimilation system of ocean observation.
- Inspection of Ocean data buoy.
- Large volume sampling for bio-geochemical study artificial radioactivity.
- Small volume sampling for bio-geochemical study of artificial and natural radio activity.



Track Chart  
Seifu Maru (Jun. 25~Aug. 13)

**Summary of Measurements and Samples Taken :**

PI	NO	UNITS	DATA TYPE	DESCRIPTION
A	89	Stations	H10	Using Neil-Brown CTD.
B	25	Stations	H21	Using Neil-Brown CTD with Rosette Sampler System.
B	17	Stations	H22, H24 H25, B02	Using Neil-Brown CTD with Rosette Sampler System.
B	3	Stations	H28	Using Neil-Brown CTD with Rosette Sampler System.
B	9	Stations	B08	Surface water sampling.
B	9	Stations	B09	Collected by Norpac Net.
D	2	Stations	P02	Using Neil-Brown CTD with Rosette Sampler System.
D	4	Stations	P03	Surface water for petroleum Hydrocarbons concentration.
A	52	Stations	H16	Using Secchi Disk.
A	15, 18	Drops, Stations	H13	X-BT drops with T6 type probe (15 Drops). Using TSK D-BT (8 Stations).
B	4	Stations	H31	Gross beta radioactivity.
A	131	Stations	D71	Using Acoustic Current Meter (FURUNO).
A	131	Stations	G73	Using echo sounder (KAIJO).
B	12	Stations	P03	Floating tar balls sampling using with Neuston net.
B	23	Days	P90	Oil slicks and floating pollutants (Daytime only).
A	4129	N. Miles	H71	Measurements of near-surface temperature and salinity using T.S.G.
C	244	Times	M06	According to WMO International Codes.
C	42	Ascents	M01	Using VAISALA Digicora MW2 system and VAISALA RS80-15N Radio Sondes.
C	307	Times	D72	Using microwave or Tucker wave gauge.
E	5	Stations	H32	Sea water sampling for radioactivity measurements 137 Cs .
E	3	Stations	H32	Sea water sampling for radioactivity measurements 90 Sr.
E	3	Stations	H32	Sea water sampling for radioactivity measurements 239 + 240 Pu.
E	2	Stations	H32	Sea water sampling for radioactivity 14C .
E	2	Stations	H32	Sea water sampling for radioactivity measurements 40 K.

Reference No. : 97026  
 Restrict Data : No  
 Ship Name : SHOYO  
 Ship Type : Survey Vessel  
 Cruise No./Name : 970029  
 Cruise Period : 01/09/1997 to 30/09/1997  
 Port of Departure : Tokyo  
 Port of Return : Tokyo

**Responsible Laboratory :** Hydrographic Department, MSA  
**Chief Scientist(s) :** Mr. K. Oda Hydrographic Department, MSA  
**General Ocean Area(s) :** North Pacific Ocean, Japan Sea  
**Geographic Coverage :** 130, 131, 166, 167  
**Principal Investigators :**  
 A; Mr. K. Oda Hydrographic Department, MSA  
 B; Mr. K. Oda Hydrographic Department, MSA

**Objectives and Brief Narrative of Cruise :**

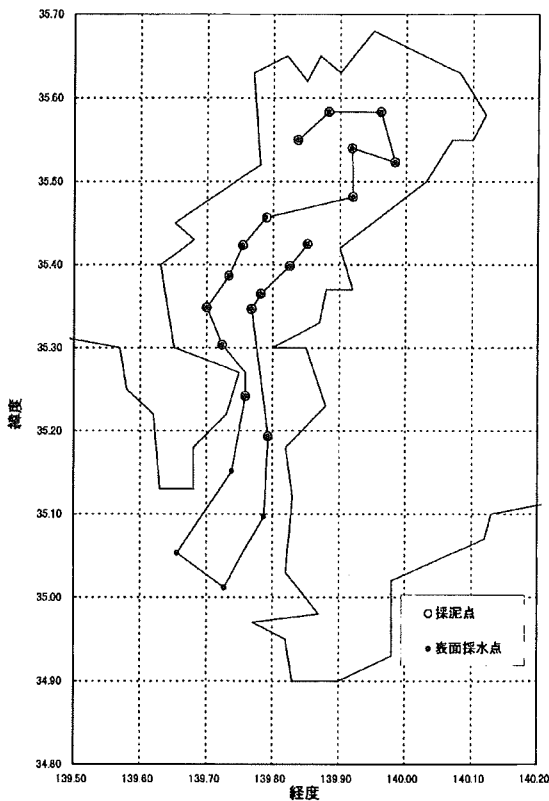
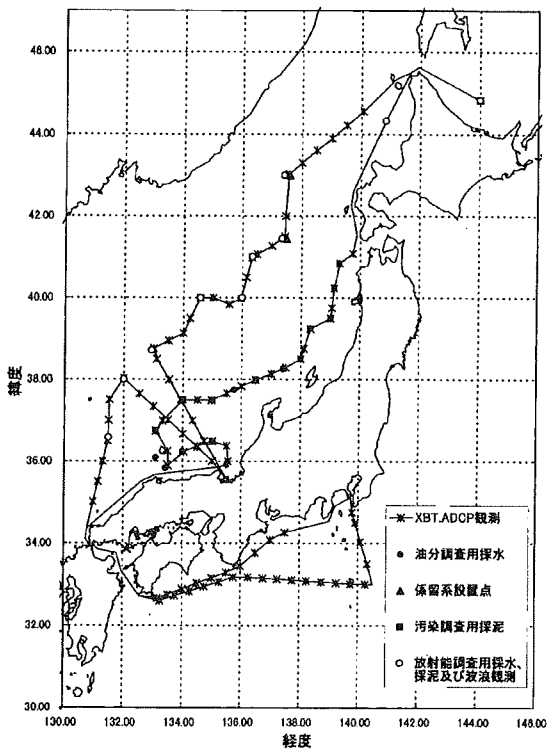
Sampling sea water and bottom sediment for marine pollution and radioactivity survey.  
 To reflect in Quick Bulletin of Ocean Condition and Ocean Current Forecasting Chart by obtaining data of Surface current and water temperature.

**Moorings, Bottom Mounted Gear and Drifting Systems :**

PI	LAT.	LON.	DATA TYPE	DESCRIPTION
A	41.27N	137.26E	D01	Mooring system deployment (Set 2 current).
A	43.00N	137.31E	D01	Mooring system deployment (Set 2 current).

**Summary of Measurements and Samples Taken :**

PI	NO	UNITS	DATA TYPE	DESCRIPTION
A	47		H21, H28	Using sampling bucket and Smith Mackintire.
B		continuous	D71	Surface current observation by ADCP.
B	93	Drops	H13	XBT Drops with T6 type probes.
B		continuous	H74	Measurement of the density of CO2 by using.
A	10	Stations	D72	Wave observation using shipborne wave analyser.





Reference No. : 97027  
 Restrict Data : Yes  
 Ship Name : WAKATORI MARU  
 Ship Type : Training Vessel  
 Cruise No./Name :  
 Cruise Period : 15/05/1997 to 10/07/1997  
 Port of Departure : Sakai  
 Port of Return : Sakai  
 Responsible Laboratory : Tottori Prefectural Sakai Fishery High School  
 Chief Scientist(s) : Mr. M. Mizuguchi Tottori Prefectural Sakai Fishery High School  
 General Ocean Area(s) : North Pacific Ocean  
 Specific Areas : Main area 11-51'N to 12-51'N, 176-12'E to 178-57'W.  
 Tuna long line fisheries and drifting buoy for surface current.

Geographic Coverage : 54, 55

Project Name :

Coordinating Body :

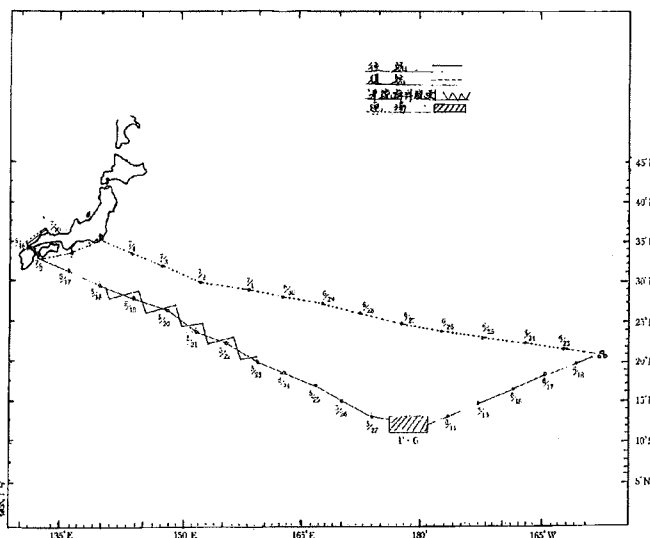
Principal Investigators :

- A; Mr. R. Yoshida, Mr. M. Mizuguchi, Mr. M. Sawano  
 Tottori Prefectural Sakai Fishery High School  
 B; Mr. M. Mizuguchi, Mr. R. Yoshida  
 Tottori Prefectural Sakai Fishery High School

**Objectives and Brief Narrative of Cruise :**

Training for tuna long line fisheries accompanied with oceanographic observation and biological research.

- 1, To go sailing oceanographic observation at sixty-mile intervals (6 hours) in the section of 1200 miles.
- 2, Oceanographic and meteorologic observation in fishing ground once a day.
- 3, To measures body length off all the caught tuna, to decide sex gonad weight.



**Moorings, Bottom Mounted Gear and Drifting Systems :**

PI	LAT.	LON.	DATA TYPE	DESCRIPTION
	12.37N	176.12E		Tuna long line first buoy, May 28 1997.
	12.51N	176.45E		Tuna long line first buoy, May 29 1997.
	12.10N	176.48E		Tuna long line first buoy, May 30 1997.
	12.05N	176.39E		Tuna long line first buoy, May 31 1997.
	11.51N	177.23E		Tuna long line first buoy, June 01 1997.
	12.10N	177.38E		Tuna long line first buoy, June 02 1997.
	11.56N	177.35E		Tuna long line first buoy, June 03 1997.
	11.56N	178.03E		Tuna long line first buoy, June 04 1997.
	12.36N	177.34E		Tuna long line first buoy, June 05 1997.
	12.40N	177.34E		Tuna long line first buoy, June 06 1997.
	12.42N	177.36E		Tuna long line first buoy, June 07 1997.
	12.43N	177.44E		Tuna long line first buoy, June 08 1997.
	12.38N	178.21E		Tuna long line first buoy, June 09 1997.
	12.40N	178.58E		Tuna long line first buoy, June 10 1997.
	12.21N	179.37E		Tuna long line first buoy, June 11 1997.
	12.17N	179.36E		Tuna long line first buoy, June 12 1997.
	12.14N	178.57E		Tuna long line first buoy, June 13 1997.

**Summary of Measurements and Samples Taken :**

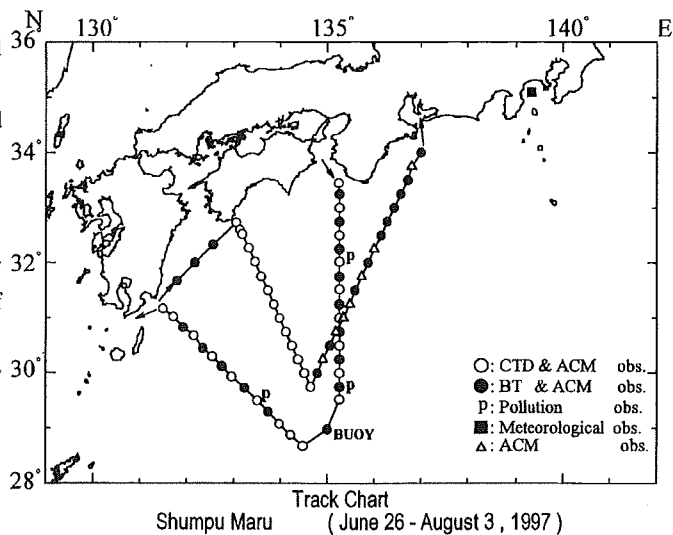
PI	NO	UNITS	DATA TYPE	DESCRIPTION
A	22	Stations	H10, H90, M90	STD (upper~1000m) sixty -miles interval 1200 miles and fishing ground.
A	22	Stations	H16	AST-1000 (STD) Alec electronics.
B	17		B13, B19	Measure body length (tuna marline ship jack) decide sex.
A	17		H10, H90, M90	STD (upper~1000m) tuna fishing ground area.

Reference No. : 97028  
 Restrict Data : No  
 Ship Name : SHUMPU MARU  
 Ship Type : Observation Ship  
 Cruise No./Name : 97-06  
 Cruise Period : 26/06/1997 to 03/08/1997  
 Port of Departure : Kobe  
 Port of Return : Kobe  
 Responsible Laboratory : Kobe Marine Observatory, JMA  
 Chief Scientist(s) : S. Naitoo Kobe Marine Observatory, JMA  
 General Ocean Area(s) : Philippine Sea, North Pacific Ocean  
 Specific Areas : South of Honshu, Sagami Bay  
 Geographic Coverage : 95, 131  
 Project Name : IGOSS, WESTPAC, MARPOLMON, WOCE  
 Coordinating Body : IOC  
 Principal Investigators :

A; T. Hinata Kobe Marine Observatory, JMA  
 B; K. Hori Kobe Marine Observatory, JMA  
 C; T. Sakai Climate and Marine Department, JMA  
 C; E. Kamihira Climate and Marine Department, JMA

**Objectives and Brief Narrative of Cruise :**

1. Regular oceanographical (physical, chemical and biological) and maritime meteorological observations.
  - a) Observations to obtain primary data of climate change and seasonal forecast.
  - b) Seasonal observations of marine condition.
  - c) Monitoring of background marine pollution.
2. Observations along the TOPEX/POSEIDON altimetry satellite tracks in order to contribute to the development of oceanographical data assimilation system.
3. Sampling of sea water for measurement of radioactivity (Gross Beta).
4. Regular check of the ocean meteorological buoy data.
5. Observation of thunderstorm in Sagami Bay.



**Summary of Measurements and Samples Taken :**

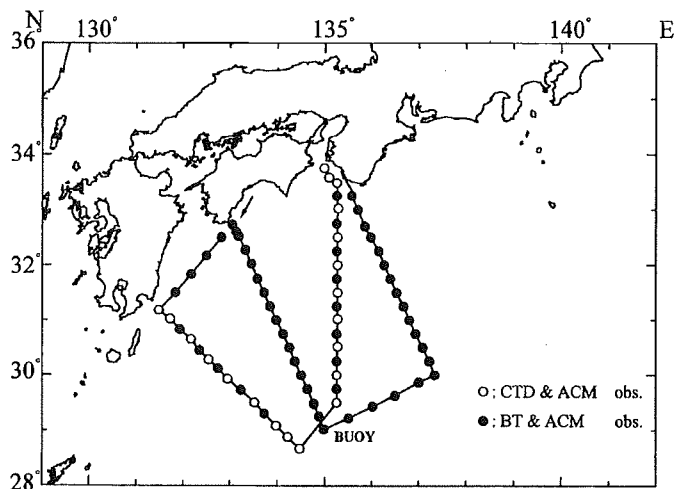
PI	NO	UNITS	DATA TYPE	DESCRIPTION
A	2490	NM	H71	Continuous sea surface temperature recording.
A	66	Stations	D71	Using Acoustic Doppler Current Meter (FURUNO ELECTRIC co., LTD).
A	32	Stations	H10	Using CTD (Neil-Broun Mark 3 B).
A	17	Stations	H09, H21, H22 H24, H25, B02	Using Rosette sampler.
A	7	Stations	H28	Using Rosette sampler.
A	3	Stations	H23	Using Rosette sampler.

A	9	Stations	B08, B09	Using bucket and NORPAC net.
A	20	Stations	H16	Using secchi Disk.
A	27	Drips	H13	XBT drops with T-7 type probes (9 stations). MICON-BT(TSURUMI-SEIKI co., LTD)(18 stations).
A	59	Times	G73	Using Echo sounder (KAIJO co., LTD).
B	145	Times	M06	Observed every three hours.
B	282	Times	M06	Observed every hour.
B	427	Times	D72	Observed every hour and using wave recorder (TSURUMI-SEIKI co., LTD WM-2).
B	28	Times	M01	Using GPS Radio Sonde (VAISALA RS80-15) and Radio Sonde Balloon (KIKYU SEISAKUSHO, TOTEX).
C	2	Stations	P02, P90	Heavy metals (Cd, Hg) and Dissolved Hydro-carbons.
C	6	Days	P90	Oil slicks and floating pollutants (Daytime only).
C	3	Stations	P03	Using neuston net.
D	3	Stations	H31	Sampling for measurement of Gross Beta Radioactivity.

**Reference No. :** 97029  
**Restrict Data :** No  
**Ship Name :** SHUMPU MARU  
**Ship Type :** Observation Ship  
**Cruise No./Name :** 97-08  
**Cruise Period :** 21/08/1997 to 09/09/1997  
**Port of Departure :** Kobe  
**Port of Return :** Kobe  
**Responsible Laboratory :** Kobe Marine Observatory, JMA  
**Chief Scientist(s) :** T. Hinata Kobe Marine Observatory, JMA  
**General Ocean Area(s) :** Philippine Sea  
**Specific Areas :** South of Honshu  
**Geographic Coverage :** 131, 95  
**Project Name :** IGOSS, MARPOLMON, WESTPAC, WOCE  
**Principal Investigators :**  
 A; T. Hinata Kobe Marine Observatory, JMA  
 B; K. Hori Kobe Marine Observatory, JMA

**Objectives and Brief Narrative of Cruise :**

1. Regular oceanographical (physical, chemical and biological) and maritime meteorological observations.
  - a) Seasonal observations of marine condition.
2. Observations along the TOPEX/POSEIDON altimetry satellite tracks in to contribute to the development of oceanographical data assimilation system.
3. Inspection of the ocean meteorological buoy.



Track Chart  
Shumpu Maru (August 21- September 9, 1997)

**Summary of Measurements and Samples Taken :**

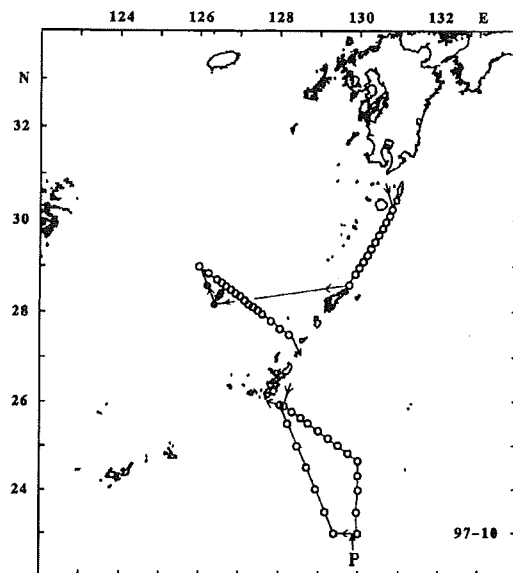
PI	NO	UNITS	DATA TYPE	DESCRIPTION
A	1664	NM	H71	Continuous sea surface temperature recording.

A	72	Stations	D71	Using Acoustic Doppler Current Meter (FURUNO ELECTRIC co., LTD).
A	20	Stations	H10	Using CTD (Neil-Brown Mark 3B).
A	17	Stations	H09, H21, H22	Using Rosette sampler.
			H24, H25, B02	
A	7	Stations	H28	Using Rosette sampler.
A	9	Stations	B08, B09	Using bucket and NORPAC net.
A	10	Stations	H16	Using secchi Disk.
A	52	Drops	H13	3 stations; XBT drops with T-6 type probes, 13 stations; XBT Drops with T-7 type probes, 36 stations; We used MICON-BT (TSURUMI-SEIKI co., LTD).
A	72	Times	G73	Using Echo sounder (KAIJO co., LTD).
B	83	Times	M06	Observed every three hours.
B	245	Times	M06	Observed every hour.
B	245	Times	D72	Observed every hour and using wave recorder (TSURUMI-SEIKI co., LTD WM-2).

**Reference No. :** 97030  
**Restrict Data :** No  
**Ship Name :** CHOFU MARU  
**Ship Type :** Observation ship  
**Cruise No./Name :** 97-10  
**Cruise Period :** 03/10/1997 to 31/10/1997  
**Port of Departure :** Nagasaki  
**Port of Return :** Nagasaki  
**Responsible Laboratory :** Nagasaki Marine Observatory, JMA  
**Chief Scientist(s) :** Mr. T. Nakano Nagasaki Marine Observatory, JMA  
**General Ocean Area(s) :** East Sea, Philippine Sea  
**Geographic Coverage :** 131, 132, 96, 95  
**Project Name :** IGOSS, KER, MARPOLMON, WESTPAC  
**Principal Investigators :**  
A; Mr. S. Wakaki Nagasaki Marine Observatory, JMA  
B; Mr. K. Kimura Nagasaki Marine Observatory, JMA  
C; Mr. M. Iwamoto Nagasaki Marine Observatory, JMA  
D; Mr. K. Ashimine Nagasaki Marine Observatory, JMA

**Objectives and Brief Narrative of Cruise :**

A seasonal oceanographic observation (physical, chemical and biology) in the East China Sea and the Philippine Sea in autumn.  
An observation of marine pollutant to monitor background of marine pollutant.  
Oceanographical and maritime meteorological observations for the verification of buoy robot observation.



**Summary of Measurements and Samples Taken :**

PI	NO	UNITS	DATA TYPE	DESCRIPTION
A	48	Stations	H10	Using Sea-Bird Electronics, Inc. 911 plus CTD System.
A	22	Days	H11	Using Tsurumi-Seiki co., thermosalinograph.
A	22	Days	D71	Using Furuno co., ADCM.
A	3	Drops	H13	X-BT drops with T6 Type probes.
B	39	Stations	H21	Using Rosette sampler.

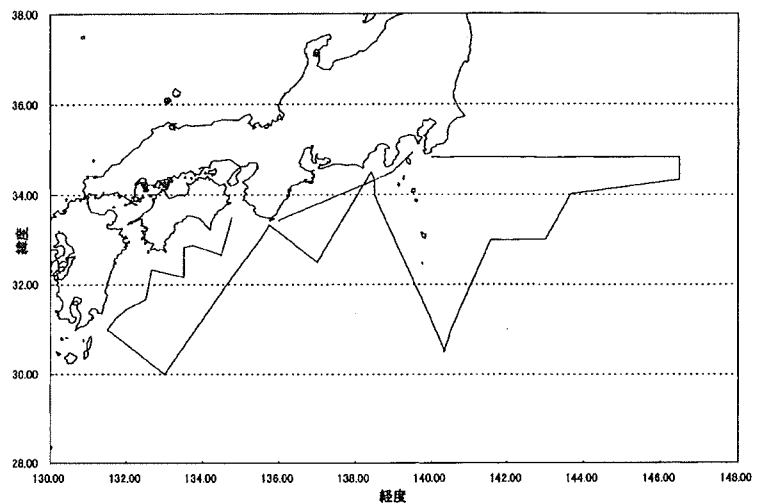
○ Serial(CTD) Observation  
● BT Observation  
P Pollution Observation

B	21	Stations	H22, H24, H25	Using Rosette sampler.
B	3	Stations	H28	Using Rosette sampler.
B	2	Stations	P02	Using Rosette sampler.
B	2	Stations	P03	Using glass jar.
B	1	Stations	P90	Using Neuston net.
C	8	Stations	B02	Using Rosette sampler.
C	8	Stations	B08	Using stainless steel water bucket.
C	8	Stations	B09	Using Norpac net.
D	22	Days	M06	Using cylindrical resonator digital barometer, platinum resistance thermometer, lithium chloride dew-point hygrometer and wind vane and fan-anemograph.
D	7	Times	M01	Automated shipboard aerological observation system by VAISALA.
D	394	Stations	D72	Using Micro-wave wavemeter continue on separate sheet.
D	22	Days	M02	Using Pyranometer.

**Reference No. :** 97031  
**Restrict Data :** No  
**Ship Name :** SHOYO  
**Ship Type :** Survey Vessel  
**Cruise No./Name :** 970023/KER  
**Cruise Period :** 14/07/1997 to 29/07/1997  
**Port of Departure :** Tokyo  
**Port of Return :** Tokyo  
**Responsible Laboratory :** Hydrographic Department, MSA  
**Chief Scientist(s) :** Mr. K. Oka Hydrographic Department, MSA  
**General Ocean Area(s) :** North Pacific Ocean, Philippine Sea  
**Geographic Coverage :** 95,131,130  
**Principal Investigators :**  
 A; Mr. K. Oka Hydrographic Department, MSA

**Objectives and Brief Narrative of Cruise :**

To reflect in Quick Bulletin of Ocean Condition and Ocean.  
 Current Forecasting Chart by obtaining data of Surface current and water temperature.



**Summary of Measurements and Samples Taken :**

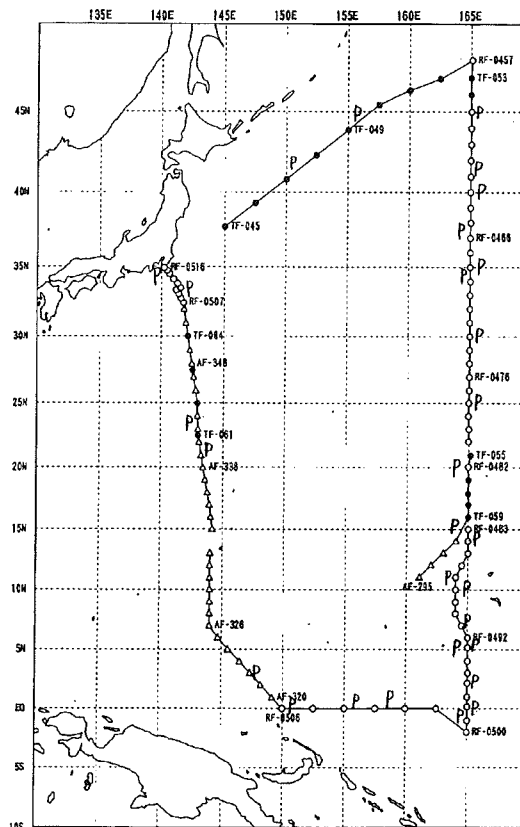
PI	NO	UNITS	DATA TYPE	DESCRIPTION
A		continuous	D71	Surface current observation by ADCP.
A	93	Drops	H13	XBT Drops with T6 type probes.

**Reference No. :** 97032  
**Restrict Data :** No  
**Ship Name :** RYOFU MARU  
**Ship Type :** Research Vessel

Cruise No./Name : 97-09  
 Cruise Period : 12/09/1997 to 07/11/1997  
 Port of Departure : Tokyo  
 Port of Return : Tokyo  
 Responsible Laboratory : Climate and Marine Department, JMA  
 Chief Scientist(s) : A. Nakadate Climate and Marine Department, JMA  
 General Ocean Area(s) : North Pacific Ocean  
 Geographic Coverage : 20, 21, 22, 56, 58, 92, 94, 128, 130  
 Principal Investigators :  
 A; E. Kamihira Climate and Marine Department, JMA  
 B; T. Sakai Climate and Marine Department, JMA  
 C; T. Kato Climate and Marine Department, JMA

**Objectives and Brief Narrative of Cruise :**

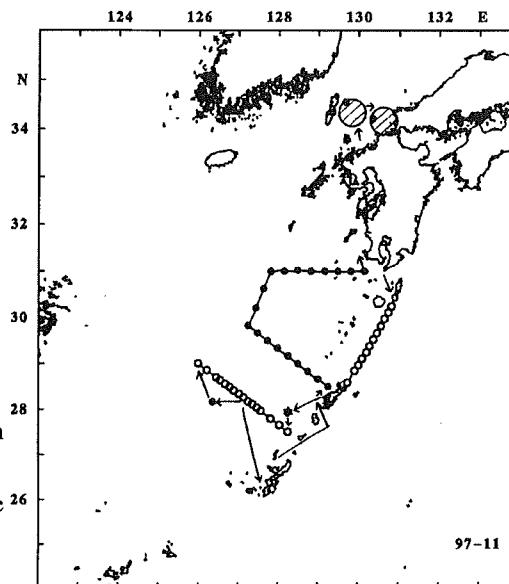
- A routine oceanographic observation (physical, chemical, biological).
- a) Seasonal observation of marine condition.
  - b) Monitoring background marine pollution.
- Sea water sampling for radioactivity measurement.



**Summary of Measurements and Samples Taken :**

PI	NO	UNITS	DATA TYPE	DESCRIPTION
A	9918	NM	H71	Continuous sea surface temperature and salinity recording.
A	60	Stations	H10	Using FSI-ICTD and Neil-Brown Mark 3B CTD.
A	113	Stations	D71	Using R.D Instrument Acoustic Doppler Current Profiler.
A	80	Stations	G73	Using NEC Echo sounder.
A	34	Stations	H16	Using Secchi Disk.
A	20	Drops	H13	X-BT drops with T-6 type probes.
A	59	Stations	H09, H21	Using Rosette Sampler.
A	31	Stations	H09, H22, H24 H25, H26	Using Rosette Sampler.
A	29	Stations	B02	Using Rosette Sampler.
A	12	Stations	B08, B09	Using bucket (B08), NORPAC net (B09).
A	6	Stations	H31	Sampling for measurement of Gross Beta Radioactivity.
A	21	Stations	H09, H28	Using Rosette Sampler.
B	9918	NM	H74, M71	CO2 concentrations in air and seawater. CH4 concentrations in air.
B	11	Stations	P02, P03	Heavy metals (P02), Dissolved Hydrocarbons (P03).
B	18	Stations	P03	Using Neuston Net.
B	21	Stations	H74	Total inorganic carbon concentration.
B	41	Days	P90	Oil slicks and floating pollutants (Daytime only).
C	353	Times	M06	Observed every 3 hours.
C	63	Ascents	M01	Using Shipboard Automatic Radio-Sonde System.

**Reference No. :** 97033  
**Restrict Data :** No  
**Ship Name :** CHOFU MARU  
**Ship Type :** Observation ship  
**Cruise No./Name :** 97-11  
**Cruise Period :** 19/11/1997 to 16/12/1997  
**Port of Departure :** Nagasaki  
**Port of Return :** Nagasaki  
**Responsible Laboratory :** Nagasaki Marine Observatory, JMA  
**Chief Scientist(s) :** R. Okada Nagasaki Marine Observatory, JMA  
**General Ocean Area(s) :** East China Sea, Philippine Sea  
**Geographic Coverage :** 96, 132, 131  
**Project Name :** IGOSS, KER, WESTPAC  
**Principal Investigators :**  
 A; Mr. S. Wakaki Nagasaki Marine Observatory, JMA  
 B; Mr. K. Kimura Nagasaki Marine Observatory, JMA  
 C; Mr. M. Iwamoto Nagasaki Marine Observatory, JMA  
 D; Mr. K. Ashimine Nagasaki Marine Observatory, JMA



**Objectives and Brief Narrative of Cruise :**

A seasonal oceanographical observation (physical, chemical and biology) in the East China Sea and the Philippine Sea in autumn.  
 Oceanographical and maritime meteorological observations for the verification of buoy robot observation.

**Summary of Measurements and Samples Taken :**

- Serial (CTD) Observation
- BT Observation
- P Pollution observation
- ⊘ Fixed Station

PI	NO	UNITS	DATA TYPE	DESCRIPTION
A	28	Stations	H10	Using Sea-Bird Electronics, Inc. 911 plus CTD System.
A	22	Days	H11	Using Tsurumi-Seiki co., thermosalinograph.
A	22	Days	D71	Using Furuno co., ADCM.
A	22	Drops	H13	XBT drops with T6 Type probes.
B	20	Stations	H21	Using Rosette sampler.
B	8	Stations	H22, H24, H25	Using Rosette sampler.
C	8	Stations	B02	Using Rosette sampler.
D	382	Stations	D72	Using Micro-wave wavemeter.
D	24	Times	M01	Automated shipboard aerological observation system by VAISALA.
D	6	Days	M02	Using Net exchange radiometer.
D	19	Days	M06	Using cylindrical resonator digital barometer, platinum resistance thermometer, lithium chloride dew-point hygrometer and wind vane and fan-anemograph.

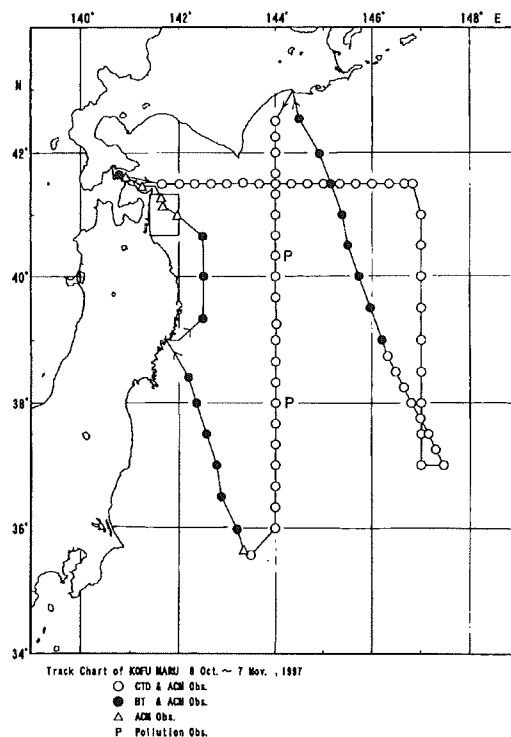
**Reference No. :** 97034  
**Restrict Data :** No  
**Ship Name :** KOFU MARU  
**Ship Type :** Research Vessel  
**Cruise No./Name :** 97-10  
**Cruise Period :** 08/10/1997 to 07/11/1997  
**Port of Departure :** Hakodate

Port of Return : Hakodate  
 Responsible Laboratory : Hakodate Marine Observatory, JMA  
 Chief Scientist(s) : Y. Miura Hakodate Marine Observatory, JMA  
 General Ocean Area(s) : North Pacific Ocean  
 Geographic Coverage : 130, 166  
 Project Name : IGOSS, WESTPAC, MARPOLMON  
 Coordinating Body : WMO, IOC  
 Principal Investigators :

A; H. Kamiya Hakodate Marine Observatory, JMA  
 B; T. Aizawa Hakodate Marine Observatory, JMA  
 C; T. Sakai Climate and Marine Department, JMA  
 D; M. Aoyama Meteorological Research Institute, JMA

**Objectives and Brief Narrative of Cruise :**

1. Regular observation of oceanography and marine meteorology.
2. Background marine pollution monitoring.
3. Sea water sampling for measurement of radioactivity.
4. Observation for development of the ocean data assimilation system (COMPASS-K).
5. Observation for the study of seasonal variability and water mass budget of Oyashio off Sanriku.
6. Ocean wave sampling for the data of coastal wave recorders.



**Summary of Measurements and Samples Taken :**

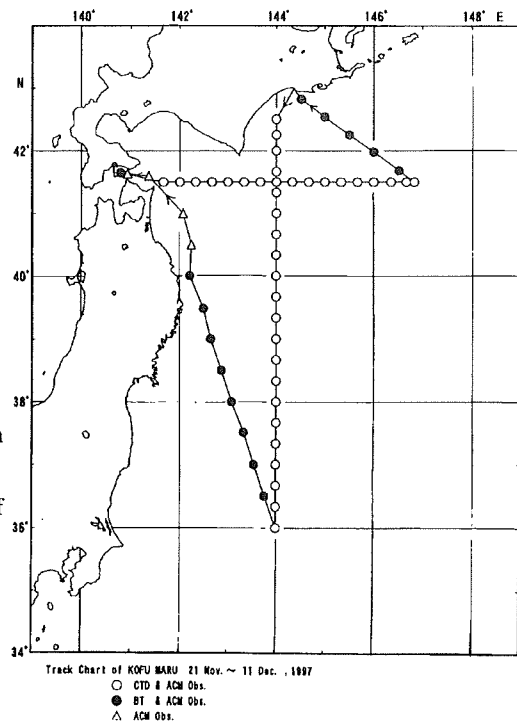
PI	NO	UNITS	DATA TYPE	DESCRIPTION
A	1724	NM	H71	Continuous sea surface temperature & salinity recording.
A	60	Stations	H10	Using Neil-Brown CTD.
A	14	Stations	H09, H21, H22 H24, H25, B02	Using Neil-Brown CTD with Roseete sampler.
A	30	Stations	H16	Using Secchi disk (Daytime only).
A	1	Drops	H71	XBT drops with T6 type probes.
A	67	Stations	D71	Using FURUNO co., Acoustic Current Meter at 0, 50, 100m in depth.
A	5	Stations	H28	Using Neil-Brown CTD with Roseete sampler.
A	6	Stations	B08	Using bucket.
A	6	Stations	B09	Using NORPAC net.
B	106	Times	M06	Observed every three hours.
B	291	Times	M90	Hourly Weather report except M06.
B	10	Ascents	M01	Using VAISALA system.
B	193	Times	D72	Using micro-wave & Tucker wave gauge.
C	2	Samples	P02	Sampling for analysis of heavy metals.
C	2	Samples	P90	Sampling for measurement of petroleum residues.
C	5	Stations	P03	Using Neuston set.
C	5	Days	P90	Oil slicks and floating pollutants observed visually (Daytime only).
A	2	Samples	H31	Sampling for measurement of Total Beta radioactivity.
D	8	Stations	H32	Large volume sampling for bio-geochemical study of artificial and natural radioactivity.



**Reference No. :** 97035  
**Restrict Data :** No  
**Ship Name :** KOFU MARU  
**Ship Type :** Research Vessel  
**Cruise No./Name :** 97-11  
**Cruise Period :** 21/11/1997 to 11/12/1997  
**Port of Departure :** Hakodate  
**Port of Return :** Hakodate  
**Responsible Laboratory :** Hakodate Marine Observatory, JMA  
**Chief Scientist(s) :** J. Nakagawa Hakodate Marine Observatory, JMA  
**General Ocean Area(s) :** North Pacific Ocean  
**Geographic Coverage :** 130, 166  
**Project Name :** IGOSS, WESTPAC  
**Coordinating Body :** WMO, IOC  
**Principal Investigators :**  
 A; H. Kamiya Hakodate Marine Observatory, JMA  
 B; T. Aizawa Hakodate Marine Observatory, JMA

**Objectives and Brief Narrative of Cruise :**

1. Regular observation of oceanography and marine meteorology.
2. Observation for development of the ocean data assimilation system (COMPASS-K).
3. Observation for the study of seasonal variability and water mass budget of Oyashio off Sanriku.



**Summary of Measurements and Samples Taken :**

PI	NO	UNITS	DATA TYPE	DESCRIPTION
A	1368	NM	H71	Continuous sea surface temperature & salinity recording.
A	38	Stations	H10	Using Neil-Brown CTD.
A	18	Stations	H09, H21, H22	Using Neil-Brown CTD with Roseete sampler. H24, H25, B02
A	16	Stations	H16	Using Secchi disk (Daytime only).
A	14	Drops	H71	XBT drops with T6 (or T5) type probes.
A	55	Stations	D71	Using FURUNO co., Acoustic Current Meter at 0, 50, 100m in depth.
A	6	Stations	H28	Using Neil-Brown CTD with Roseete sampler.
B	64	Times	M06	Observed every three hours.
B	105	Times	M90	Hourly Weather report except M06.
B	9	Ascents	M01	Using VAISALA system.
B	64	Times	D72	Using micro-wave & Tucker wave gauge.

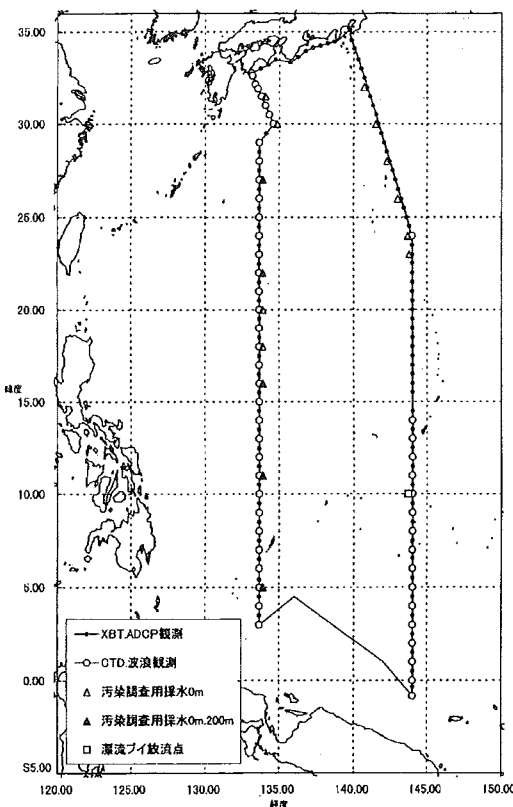
**Reference No. :** 97036  
**Restrict Data :** No  
**Ship Name :** SHOYO  
**Ship Type :** Survey Vessel  
**Cruise No./Name :** 970032 / WESTPAC & KER  
**Cruise Period :** 25/11/1997 to 20/12/1997  
**Port of Departure :** Tokyo  
**Port of Return :** Tokyo

Responsible Laboratory : Hydrographic Department, MSA  
 Chief Scientist(s) : Mr. Y. Shimohira Hydrographic Department, MSA  
 General Ocean Area(s) : North Pacific Ocean, Philippine Sea  
 Geographic Coverage : 321, 22, 23, 59, 58, 94, 95, 130, 131  
 Project Name : KER  
 Principal Investigators :  
 A; Mr. Y. Shimohira Hydrographic Department, MSA  
 B; Mr. K. Oda Hydrographic Department, MSA

**Objectives and Brief Narrative of Cruise :**

Object : As a part of WESTPAC and KUROSHIO EXPLOITATION AND UTILIZATION RESEARCH (KER), this observation aims to investigate the structure of ocean circulation at the subtropical region in the western pacific ocean.

- (A) Surface current observation by ADCP.
- (B) Measurement of the density of carbonic acid gas.
- (C) Measurement of water temperature at surface layer by XBT.
- (D) Measurement of water temperature and salinity by using CTD system and chemical analysis of sea water for nutrient matter.
- (E) Wave observation by shipborne analyzer.
- (F) Deployment of ARGOS buoys (Drifting buoys).



**Moorings, Bottom Mounted Gear and Drifting Systems :**

PI	LAT.	LON.	DATA TYPE	DESCRIPTION
A	10.00N	144.00E	D05	Deployed a drifting buoy, Dec. 12 1997.

**Summary of Measurements and Samples Taken :**

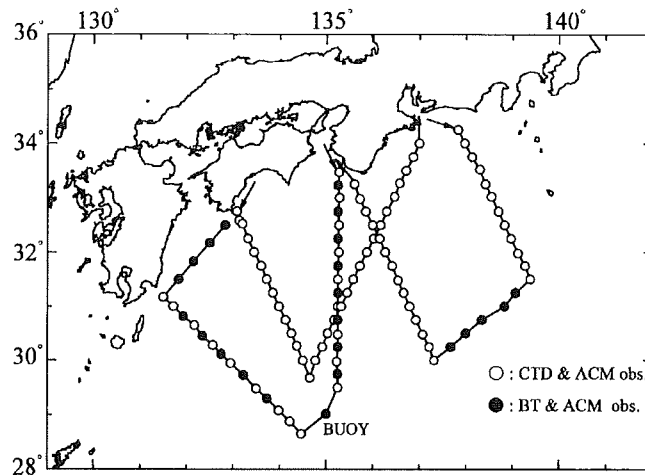
PI	NO	UNITS	DATA TYPE	DESCRIPTION
A		continuous	D71	Surface current observation by ADCP.
A	91	Drops	H13	XBT Drops with T6 probes.
A	52	Stations	H09, H21	Deep cast using Rosette Sampler with reversing.
A	52	Stations	H10	Using Sea Bird SBE 9plus CTD (upper 6500db).
A	52	Stations	H21, H22	Surface temperature measurement and surface.
A	52	Stations	D72	Wave observation using shipborne wave analyzer.
B	15	Samples	D02, D03	All samples of surface for trace.
A		continuous	G74	Submarine topographic survey along the cruise line.

Reference No. : 97037  
 Restrict Data : No  
 Ship Name : SHUMPU MARU  
 Ship Type : Observation Ship  
 Cruise No./Name : 97-10  
 Cruise Period : 06/10/1997 to 13/11/1997  
 Port of Departure : Kobe  
 Port of Return : Kobe  
 Responsible Laboratory : Kobe Marine Observatory, JMA  
 Chief Scientist(s) : K. Kadono Kobe Marine Observatory, JMA  
 General Ocean Area(s) : Philippine Sea  
 Specific Areas : South of Honshu  
 Geographic Coverage : 95, 131

Project Name : IGOSS, WESTPAC, MARPOLMON  
 Coordinating Body : IOC  
 Principal Investigators :  
 A; T. Hinata Kobe Marine Observatory, JMA  
 B; K. Hori Kobe Marine Observatory, JMA  
 C; T. Sakai Climate and Marine Department, JMA

Objectives and Brief Narrative of Cruise :

1. Regular oceanographical (physical, chemical and biological) and maritime meteorological observations.
  - a) Observations to obtain primary data of climate change and seasonal forecast.
  - b) Seasonal observations of marine condition.
  - c) Monitoring of background marine pollution.
2. Observations along the TOPEX/POSEIDON altimetry satellite tracks in order to contribute to the development of oceanographical data assimilation system.
3. Regular check of ocean meteorological buoy data.



Shumpu Maru Track Chart (October 6 - November 13, 1997)

Summary of Measurements and Samples Taken :

PI	NO	UNITS	DATA TYPE	DESCRIPTION
A	2420	NM	H71	Continuous sea surface temperature recording.
A	98	Stations	D71	Using Acoustic Doppler Current Meter.(FURUNO ELECTRIC co., LTD)
A	75	Stations	H10	Using CTD. (Neil-Brown Mark 3 B)
A	17	Stations	H09, H21, H22 H24, H25, B02	Using Rossete sampler.
A	7	Stations	H28	Using Rossete sampler.
A	9	Stations	B08, B09	Using bucket and NORPAC net.
A	32	Stations	H16	Using Secchi disk.
A	23	Drops	H13	We used MICON-BT (TSURUMI-SEIKI co.,LTD).
A	98	Times	G73	Using Echo sounder (KAIJO co., LTD).
B	117	Times	M06	Observed every three hours.
B	343	Times	M06	Observed every hour.
B	343	Times	D72	Observed every hour and using wave recorder (TSURUMI-SEIKI co., LTD WM-2).
C	2	Stations	P02, P90	Heavy metals (Cd,Hg) and Dissolved Hydro-carbons.
C	12	Days	P90	Oil slicks and floating pollutants (Daytime only).
C	6	Stations	P03	Using neuston net.

Reference No. : 97038  
 Restrict Data : No  
 Ship Name : KAKUYO MARU  
 Ship Type : Training Ship  
 Cruise No./Name : Voyage No.128  
 Cruise Period : 24/10/1997 to 21/12/1997  
 Port of Departure : Nagasaki  
 Port of Return : Nagasaki  
 Responsible Laboratory : Faculty of Fisheries, Nagasaki University  
 Chief Scientist(s) : Y. Akishige Faculty of Fisheries, Nagasaki University  
 General Ocean Area(s) : North Pacific Ocean, South Pacific Ocean

*Specific Areas :* Tasman Sea  
*Geographic Coverage :* 20, 22, 58, 319, 391  
*Principal Investigators :*  
 A; Y. Akishige Faculty of Fisheries, Nagasaki University

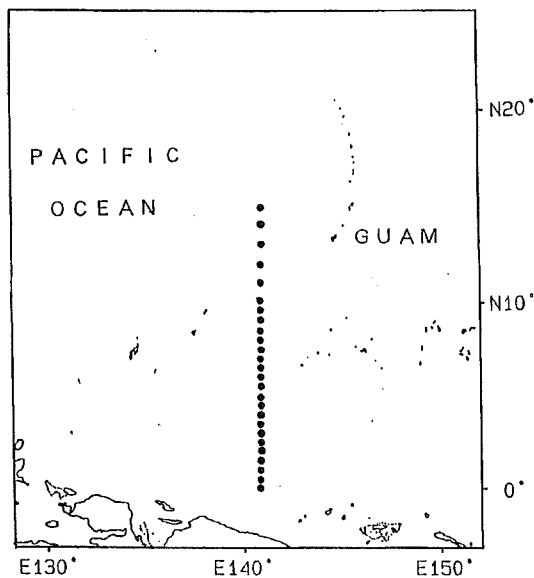
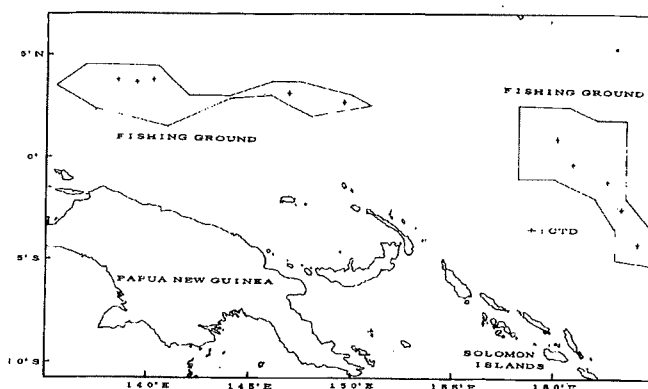
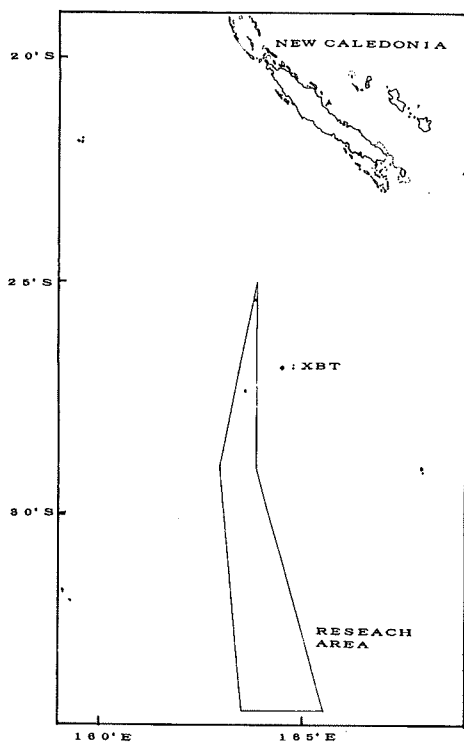
*Objectives and Brief Narrative of Cruise :*

Main Task

1. Training of Navigation.
2. Training of Operation of purse seine fishing.
3. Oceanographic observation.

*Summary of Measurements and Samples Taken :*

PI	NO	UNITS	DATA TYPE	DESCRIPTION
A	25	Drops	H13	XBT (T6 type probes).
A	10	Stations	H10	Using Neil-Brown Mark 3B CTD (Upper 1000m).



*Reference No. :* 97039  
*Restrict Data :* No  
*Ship Name :* SEIFU MARU  
*Ship Type :* Research Vessel  
*Cruise No./Name :* 97-10  
*Cruise Period :* 08/10/1997 to 05/11/1997

Port of Departure : Maizuru  
 Port of Return : Maizuru  
 Responsible Laboratory : Maizuru Marine Observatory, JMA  
 Chief Scientist(s) : Mr. N. Sato Maizuru Marine Observatory, JMA  
 General Ocean Area(s) : Japan Sea  
 Geographic Coverage : 131  
 Principal Investigators :

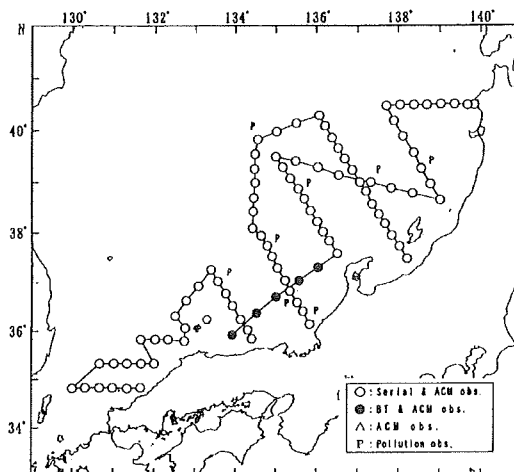
A; Mr. S. Kawae Maizuru Marine Observatory, JMA  
 B; Mr. N. Sato Maizuru Marine Observatory, JMA  
 C; Mr. N. Obata Maizuru Marine Observatory, JMA  
 D; Mr. T. Sakai Climate and Marine Department, JMA

**Objectives and Brief Narrative of Cruise :**

Seasonal observation of marine conditions and monitoring the back-ground marine pollutions.

Main task

1. Water sampling for marine pollution analysis (for mercury, cadmium and petroleum residue).
2. Hydrographic observation (physical, chemical and biological).
3. Inspection of ocean data buoy.



Track Chart

**Summary of Measurements and Samples Taken :**

PI	NO	UNITS	DATA TYPE	DESCRIPTION
A	2556	N. Miles	H71	Measurements of near-surface temperature and salinity using T.S.G.
A	17	Stations	H09, H21 H24, H25	Using Neil-Brown CTD with Rossette sampler System.
B	17	Stations	H09, H21 H24, H25	Using Neil-Brown CTD with Rosette sampler System.
A	88	Stations	H10	Using Neil-Brown CTD.
A	38	Stations	H16	Using Secchi Disk.
A	93	Stations	D71	Using Acoustic Current Meter (FURUNO).
A	316	Times	D72	Using microwave or Tucker wave gauge.
B	17	Stations	B02	Using Neil-Brown CTD with Rosette sampler System.
B	3	Stations	H28	Using Neil-Brown CTD with Rosette sampler System.
B	0	Station	H31	Sampling for measurement of Gross Beta Radioactivity.
B	3	Samples	P02	Using Neil-Brown CTD with Rosette sampler System.
B	4	Samples	P03	Using Surface water sampling.
B	4	Samples	P03	Using Neuston net.
A	26	Days	P90	Oil slicks and floating pollutants (Daytime only).
A	9	Stations	B08	Using Surface water sampling.
A	9	Stations	B09	Collected by Norpac Net.
A	5	Stations	H13	X-BT drops with T6 type probe.
C	8	Ascents	M01	Using VAISALA Dig coda MW2 system and VAISALA RS80-15N Radio Sondes.
C	384	Times	M06	According to "WMO International Codes".
A	93	Stations	G73	Using echo sounder (KAJJO).

Reference No. : 97040  
 Restrict Data : No  
 Ship Name : SEIFU MARU  
 Ship Type : Research Vessel  
 Cruise No./Name : 97-11

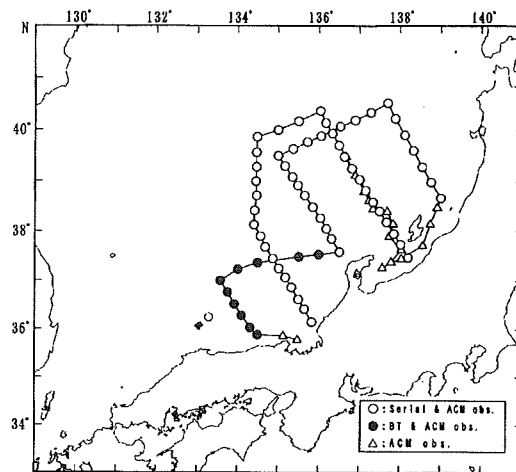
Cruise Period : 21/11/1997 to 11/12/1997  
 Port of Departure : Maizuru  
 Port of Return : Maizuru  
 Responsible Laboratory : Maizuru Marine Observatory, JMA  
 Chief Scientist(s) : Mr. J. Jifuku Maizuru Marine Observatory, JMA  
 General Ocean Area(s) : Japan Sea  
 Geographic Coverage : 167, 131  
 Principal Investigators :  
 A; Mr. S. Kawae Maizuru Marine Observatory, JMA  
 B; Mr. N. Sato Maizuru Marine Observatory, JMA  
 C; Mr. N. Obata Maizuru Marine Observatory, JMA

**Objectives and Brief Narrative of Cruise :**

Seasonal observation of marine condition.

Main task

1. Hydrographic observation (physical, chemical and biological).
2. Inspection of ocean data buoy.



**Track Chart**  
 Seifu Maru (Nov. 21 ~ Dec. 11)

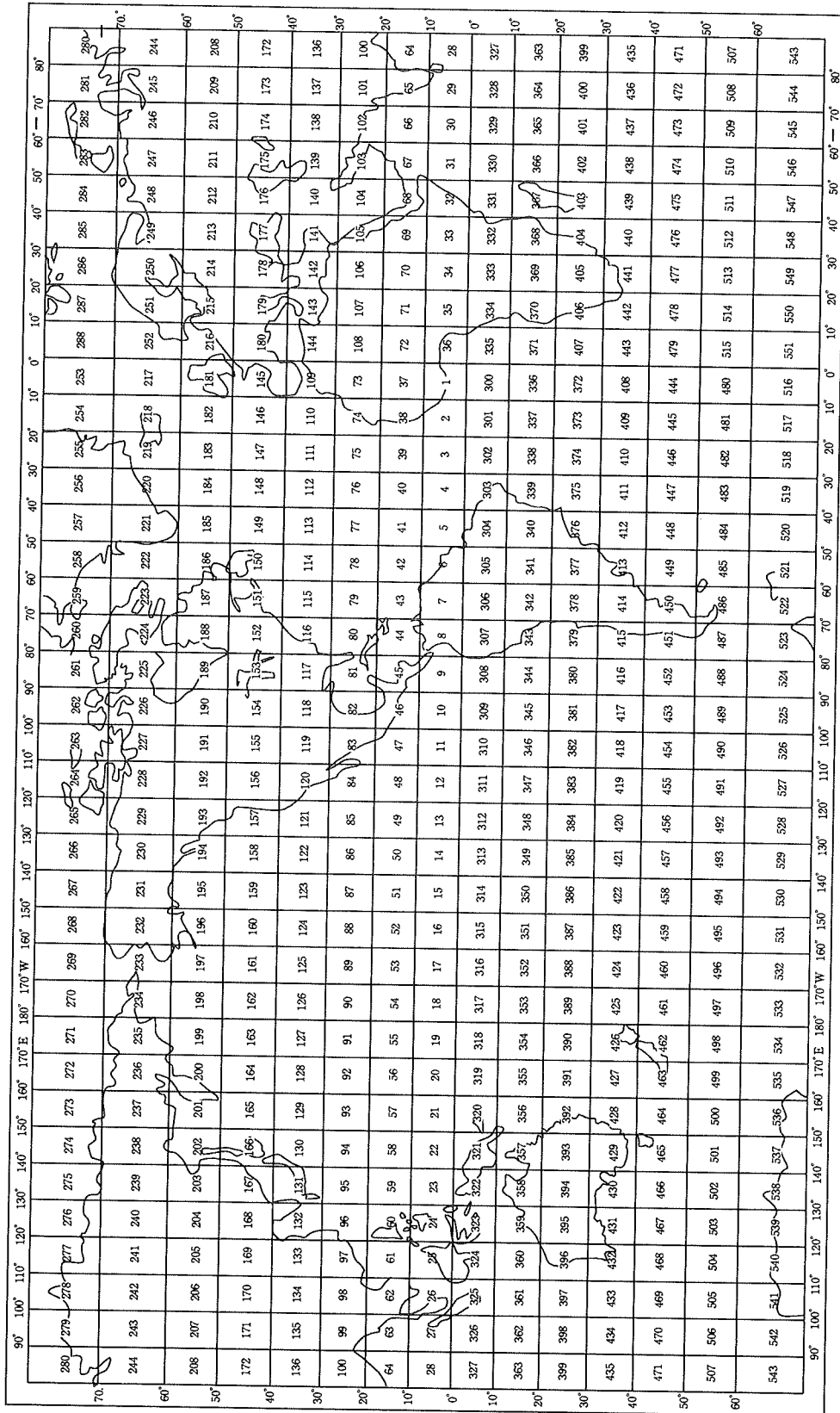
**Summary of Measurements and Samples Taken :**

PI	NO	UNITS	DATA TYPE	DESCRIPTION
A	2186	N. Miles	H11	Measurements of near-surface temperature and salinity using T.S.G.
B	22	Stations	H21	Using Neil-Brown CTD with Rossette sampler System.
B	17	Stations	H22, H24 H25, B02	Using Neil-Brown CTD with Rossette sampler System.
B	3	Stations	H28	Using Neil-Brown CTD with Rossette sampler System.
A	55	Stations	H10	Using Neil-Brown CTD.
B	9	Stations	B08	Surface water sampling.
B	9	Stations	B09	Collected by Norpac Net.
A	18	Stations	H16	Using Secchi Disk.
A	10	Drops	H13	X-BT drops with T6 type probe.
A	82 S	tations	D71	Using acoustic current meter (FURUNO).
A	82	Stations	G73	Using echo sounder (KAIJO).
C	349	Times	M06	According to "WMO International Codes".
C	7	Ascents	M01	Using VAISALA Dig coda MW2 system and VAISALA RS80-15N Radio Sondes.
C	208	Times	D72	Using microwave or Tucker wave gauge.

## 付 録 目 次

- 付録1 MSQ海域番号図（全世界、西太平洋）
- 付録2 航海概要報告記入要領（書式付き）
- 付録3 調査機関略語表

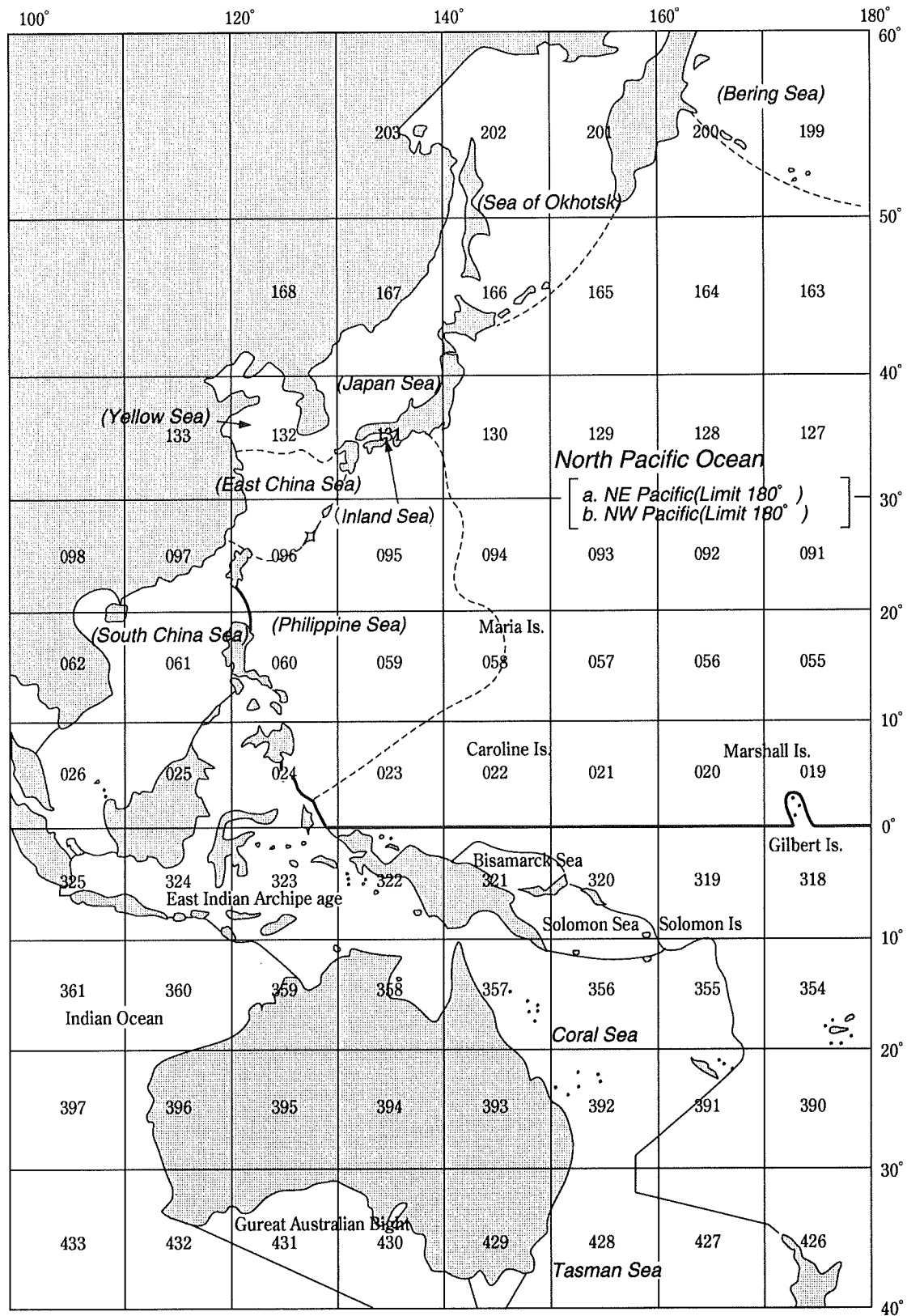
MSQ 海域番号图 (全世界)





# MSQ 海域番号図 (西太平洋)

海域の境界はIHO分類による



## 航海概要報告（CRUISE SUMMARY REPORT）書式

以下の4ページは記入用の書式です。今後、記入送付される方はこの書式を使用して下さい。

<b>CRUISE SUMMARY REPORT</b> <b>航海概要報告</b>		FOR COLLATING / CENTER USE (照会のためセンターで使用)			
		Center: JODC	Ref.No:		
		Is data exchange restricted?	<input type="checkbox"/> Yes はい	<input type="checkbox"/> In part 条件付き	<input checked="" type="checkbox"/> No いいえ
<b>SHIP</b> enter the full name and international radio call sign of the ship from which the data were collected, and indicate the type of ship, for example, research ship; ship of opportunity, naval survey vessel; etc. <small>データを収集した船舶のフルネームと国際無線呼出符号を記入し、船舶の種類は、例えば、調査船、便宜供与船、海軍の調査船などを記入する。</small>					
Name: Shirase		Call Sign:			
Type of ship: Icebreaker					
CRUISE NO./NAME: JARE 33		enter the unique number, name or acronym assigned to the cruise (or cruise leg, if appropriate). 航海(又は航海のレグ)の固有番号、名前又は略称を記入			
<b>CRUISE PERIOD</b> start [1 4] [1 1] [1 9 9 1] to [2 0] [0 4] [1 9 9 2] end <small>航海期間 (set sail) day month year (出港) day month year (return to port) (入港)</small>					
PORT OF DEPARTURE (enter name and country): Tokyo, Japan					
PORT OF RETURN (enter name and country): Tokyo, Japan					
<b>RESPONSIBLE LABORATORY</b> enter name and address of the laboratory responsible for coordinating the scientific planning of the cruise. <small>担当機関 航海の観測計画を作成した担当調査機関の名称と住所を記入</small>					
Name: National Institute of Polar Research					
Address: 1-9-10, Kaga, Itabashi-ku, Tokyo 173					
Country: Japan					
<b>CHIEF SCIENTIST(S)</b> enter name and laboratory of the person(s) in charge of the scientific work(chief of mission) during the cruise. <small>観測責任者 航海中観測調査を担当した者(観測班長)の名前と所属機関を記入</small>					
T. Yamamoto, Hydrographic Department, Maritime Safety Agency					
<b>OBJECTIVES AND BRIEF NARRATIVE OF CRUISE</b> enter sufficient information about the purpose and nature of the cruise so as to provide the context in which the reported data were collected. <small>航海の目的と簡単な報告内容 収集されたデータの有効利用に供するため、航海の目的と性格について十分な情報を記入</small>					
One of a routine oceanographic observation (physical and chemical) on the 33rd summer mission of Japanese Antarctic Research Expedition					
A. Monitoring the position of Subtropical Convergence and Antarctic Convergence					
B. Trace of the Antarctic Circumpolar Current					
C. Marine pollution analysis					
Main task 1. Deploy surface drifting buoy at 47° 35' S, 47° 10' E					
2. Surface water sampling for temperature measurement and chemical analysis					
3. Hydrographic measurement in Southern Ocean en route from Fremantle to Mauritius					
<b>PROJECT (IF APPLICABLE)</b> If the cruise is designated as part of a larger scale cooperative project (or expedition or programme), then enter the name of the project, and of the organization responsible for coordinating the project. <small>(該当する場合) 航海が共同プロジェクト(または調査、計画)の一部であるならば、そのプロジェクトの名称と調整機関名を記入</small>					
Project Name:					
Coordinating body:					

**PRINCIPAL INVESTIGATORS:** enter the name and address of the principal investigators responsible for the data collected on the cruise, and who may be contacted for further information about the data. (the letter assigned below against each principal investigator is used on pages 2 and 3, under the column heading 'PI', to identify the data sets for which he/she is responsible)

**主調査者:** 航海で収集されたデータについて責任を持っている筆頭の調査者とデータに関する詳細な情報照会に応じる者の名前とあて先を記入 (2ページ、3ページのPI欄には、A、B、C…で記入する。)

- A... *Dr. T. Yamamoto... Hydrographic Department... Maritime Safety Agency... 5-3-1... Tsukiji... Chuo-ku... Tokyo 104*.....
- B... *Mr. S. Suzuki... 2nd Regional Maritime Safety Headquarter... 3-4-1... Teizan-dori... Shioyama Miyagi 985*.....
- C.....
- D.....
- E.....
- F.....

**MOORINGS, BOTTOM MOUNTED GEAR AND DRIFTING SYSTEMS**

this section should be used for reporting moorings, bottom mounted gear and drifting systems (both surface and deep) deployed and/or recovered during the cruise. separate entries should be made for each location (only deployment positions need be given for drifting systems). this section may also be used to report data collected at fixed locations which are returned to routinely in order to construct 'long time series'.

**係留、海底設置機器、漂流システム**

係留、海底設置機器及び漂流システム(海面、海中とも)の設置と回収について記入する。各設置点ごとに記入のこと。(漂流システムについては投入した位置のみで可)  
また、時系列をとるために定期的に測定される地点でのデータについてもこの欄に記入してよい。

PI <small>see top of page.</small>	APPROXIMATE POSITION						DATA TYPE <small>enter code(s) from list on cover page. リストのコードを記入</small>	DESCRIPTION <small>Identify, as appropriate, the nature of the instrumentation, the parameters (to be) measured, the number of instruments and their depths, whether deployed and/or recovered, dates of deployment and/or recovery, and any identifiers given to the site. 機器の種類、測定のパラメータ、機器数とその深度、設置または回収の日付と位置</small>
	LATITUDE			LONGITUDE				
	deg	min	N/S	deg	min	EW		
A	47	35	S	47	10	E	D05	<i>Deployed a drifting buoy, March 7, 1991</i>
A	69	00	S	39	34	E	D09	<i>Set new tidegauge, January 14, 1992 (Meiseidenki Co. QWP-8-103D. straingauge)</i>

Please continue on separate sheet if necessary.

書ききれない場合は別紙に続ける。

**SUMMARY OF MEASUREMENTS AND SAMPLES TAKEN**

except for the data already described on page 2 under 'moorings, bottom mounted gear and drifting systems', this section should include a summary of all data collected on the cruise, whether they be measurements (e.g. temperature, salinity values) or samples (e.g. cores, net hauls). separate entries should be made for each distinct and coherent set of measurements or samples. different modes of data collection (e.g. vertical profiles as opposed to underway measurements) should be clearly distinguished, as should measurement/sampling techniques that imply distinctly different accuracies or spatial/temporal resolutions. thus, for example, separate entries would be created for i) BT drops, ii) water bottle stations, iii) CTD casts, iv) towed CTD, v) towed undulating CTD profiler, vi) surface water intake measurements, etc. each data set entry should start on a new line - its description may extend over several lines if necessary.

**測定とサンプル採取の概要**

2ページに記入する係留、海底設置機器、漂流システムを除く全ての測定（水温、塩分等）やサンプル（コア、ドレッジ等）によるデータに関する概要について記入のこと。

測定とサンプル毎に分けて記入のこと。データ収集の方法が異なる（例えば、航行しながらの測定と停船してセンサーを鉛直に降ろして行う測定）場合や精度や場所・時間の分解能が明らかに異なる測定/サンプリング手法の場合には区別して記入すること。例えば、BT投下、採水点、CTD投下、CTD曳航、CTD波形曳航、表面水取水口観測等は分けて記入することになる。記入はデータ毎に改行すること。必要ならば、一つのデータの記述が数行にわたっても構わない。

**NO, UNITS:** for each data set, enter the estimated amount of data collected expressed in terms of the number of; 'stations'; 'miles' of track; 'days' of recording; 'cores' taken; net 'hauls'; balloon 'ascents'; or whatever unit is most appropriate to the data. the amount should be entered under 'no' and the counting unit should be identified in plain text under 'units'.

**数量、単位** 各データセットごとに、収集されたデータの推定量を観測地点数、航跡距離（NM）、観測記録の日数、収集されたコア数、曳網数、揚げた気球数その他取得データにふさわしい単位を用いて記述すること。量はNOの項に、単位は平易な記述でUNITSの項に記入

PI	NO	UNITS	DATA TYPE	DESCRIPTION
see page 2	see above	see above	enter code(s) from list on cover page. リストのコードを記入	Identify, as appropriate, the nature of the data and of the instrumentation/sampling gear and list the parameters measured. include any supplementary information that may be appropriate, e.g. vertical or horizontal profiles, depth horizons, continuous recording or discrete samples, etc. for samples taken for later analysis on shore, an indication should be given of the type of analysis planned, i.e. the purpose for which the samples were taken. データ、使用機器/装置の種類・特性を適宜明記し、測定されたデータ項目を列記する。水平/垂直プロファイルの別、測定層の深度、連続記録か間隔を開けたものか、等の適当な補足情報も含むこと。陸上での解析のために採取されたサンプルについては、どのような分析が行われる予定であるのか、即ちサンプルが採取された目的を記すこと。
A	13	Stations	H09, H21 H22, H24 H25, H76 H26, H28	Deep cast using Nansen bottles with reversing thermometers
A	13	Stations	H10	Using Neil-Brown Smart CTD (upper 1000m)
A	51	Drops	H13	XBT Drops with T6 type probes
B	198	Samples	H71, H21 H22, H24 H25, H76 H26, H28	Surface temperature measurement and surface water sampling for Chemical analysis were made twice or three times a day (once a day as Shirase stayed in ice-covered area).
B	29	Samples	P02, P03	9 samples of surface water for trace metals (Cadmium, Mercury, Copper and Zinc) 20 samples of surface water for petroleum oil

Please continue on separate sheet if necessary.  
書ききれない場合には別紙に続ける。

**TRACK CHART:** You are strongly encouraged to submit, with the completed report, an annotated track chart illustrating the route followed and the points where measurements were taken.

**航跡図** なるべく航跡と測定点を示す注釈付き航跡図を本報告に添付すること。

Insert a tick (✓) in this box if a track chart is supplied.

航跡図添付の場合はマーク(✓)する。



**GENERAL OCEAN AREA(S):** Enter the names of the oceans and/or seas in which data were collected during the cruise - please use commonly recognized names (see, for example, International hydrographic bureau special publication no. 23, 'limits of oceans and seas').

**調査海域** 航海中にデータを収集した海洋または海域の名称を記入する。一般的な名称を使用のこと。(国際水路局(IHB)増刊23号 "Limits of Ocean and Seas" を参照)

Philippine sea, East Indian Archipelago

Indian Ocean, South China Sea

**SPECIFIC AREAS:** If the cruise activities were concentrated in a specific area(s) of an ocean or sea, then enter a description of the area(s). Such descriptions may include references to local geographic areas, to sea floor features, or to geographic coordinates.

**特定海域** 調査航海がある海域の特定区域に集中したならば、その区域について、ローカルな海域名、海底地形、または地理座標などを記載する。

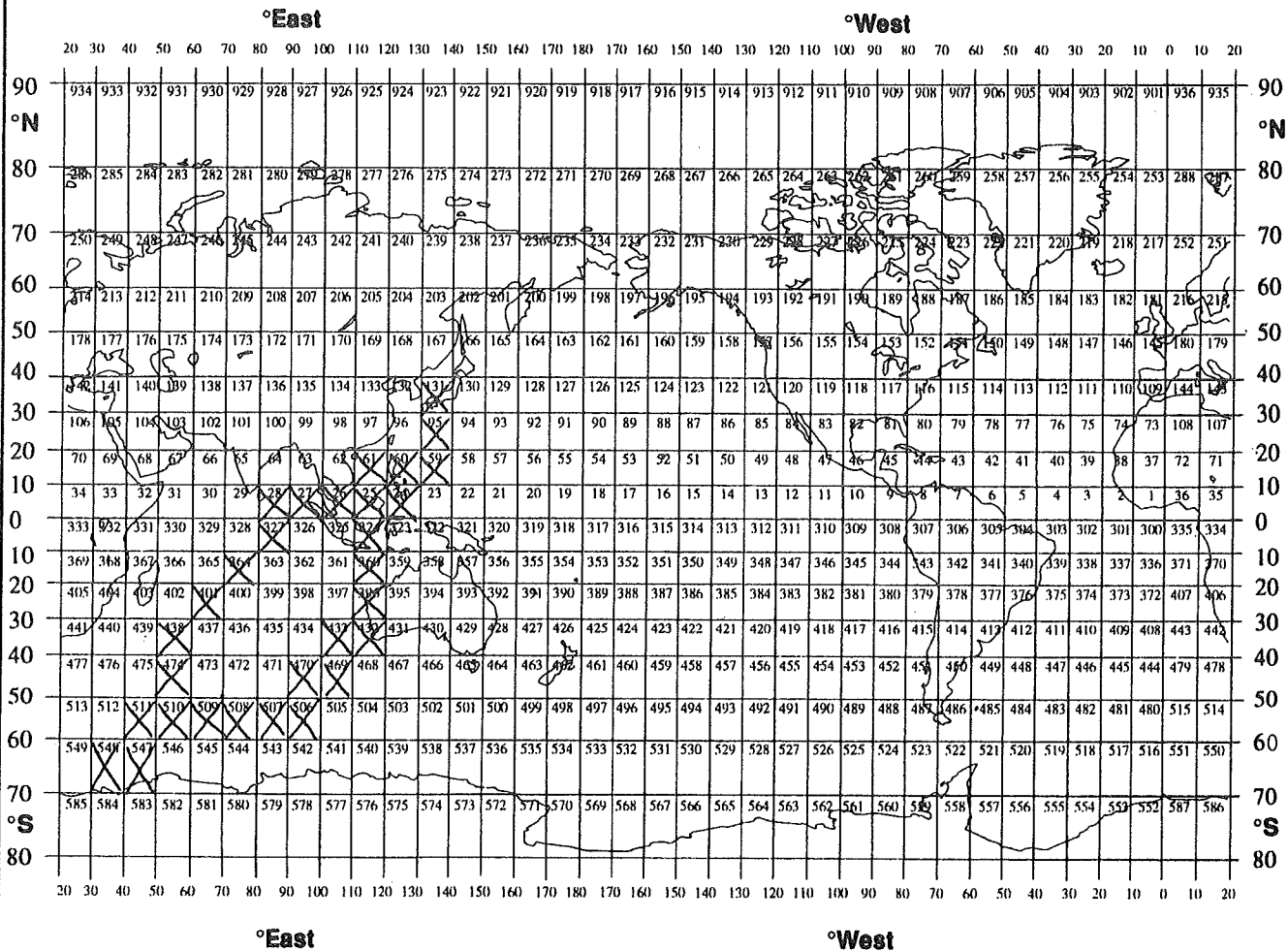
Main Area : Bred Bay (70° -15' S to 70° -10' S at latitude, 23° -45' E to 24° -30' E at longitude)

Long Section : Antarctic ice edge to the east off Madagascar

**GEOGRAPHIC COVERAGE - INSERT 'X' IN EACH SQUARE IN WHICH DATA WERE COLLECTED**

調査範囲

データを収集した場所に 'X' を記入



THANK YOU FOR YOUR COOPERATION

Please send your completed report without delay to the collating center indicated on the cover page

ご協力有難うございました。

完成した報告は遅滞なく日本海洋データセンターまで送付願います。

航跡図の例

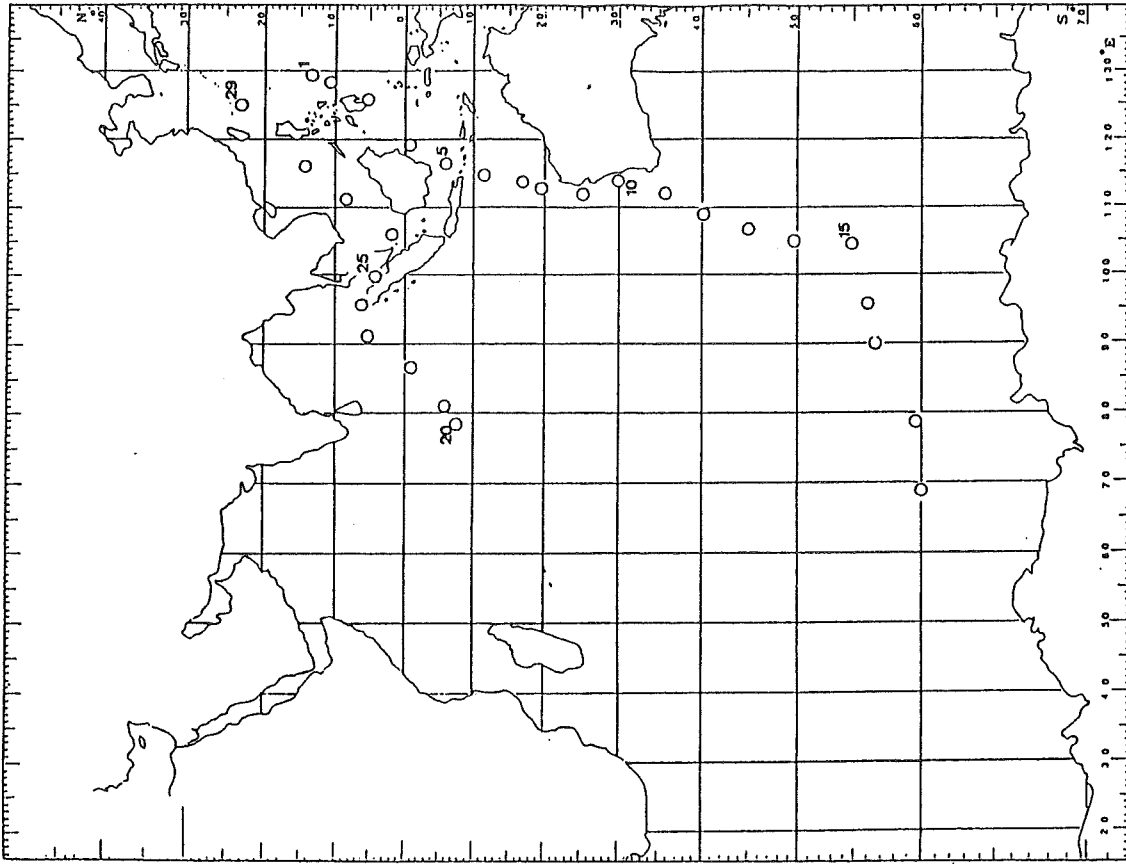


Fig. 2. The location of surface water sampling for marine pollution analysis (petroleum oil, Cd, Hg, Cu and Zn).

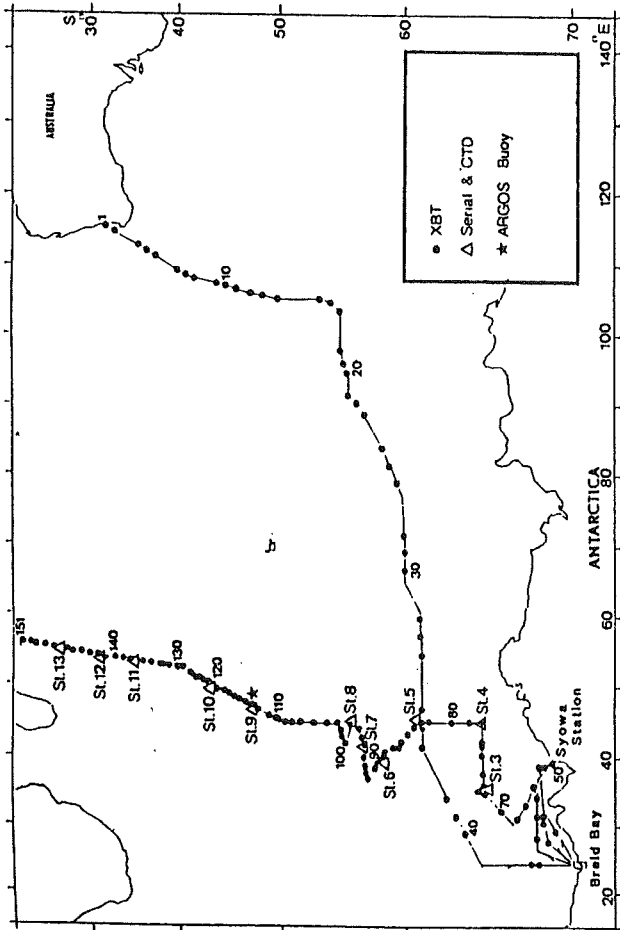
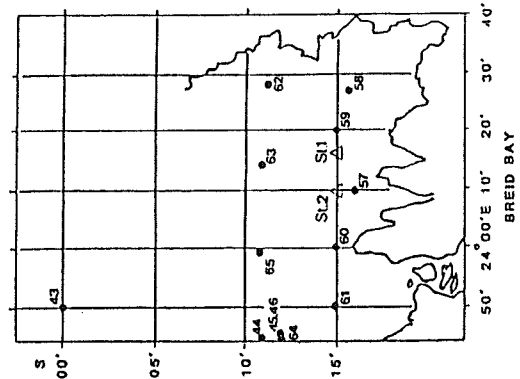


Fig. 1a. The track chart and the station location of oceanographic observations.



# CRUISE SUMMARY REPORT

## 航海概要報告

FOR COLLATING / CENTER USE  
(照合のためセンターで使用)

Center:..... Ref.No:.....

Is data exchange restricted?  Yes  In part  No  
データ交換に制限があるか はい 条件付き いいえ

**SHIP** enter the full name and international radio call sign of the ship from which the data were collected, and indicate the type of ship, for example, research ship; ship of opportunity, naval survey vessel; etc.  
データを収集した船舶のフルネームと国際無線呼出符号を記入し、船舶の種類は、例えば、調査船、便宜供与船、海軍の調査船などを記入する。

Name:..... Call Sign:.....

Type of ship:.....

**CRUISE NO./NAME**..... enter the unique number, name or acronym assigned to the cruise (or cruise leg, if appropriate).  
航海(又は航海のレグ)の固有番号、名前又は略称を記入

**CRUISE PERIOD** start (set sail) (出港) to end (return to port) (入港)  
航海期間 (set sail) (出港) day month year to day month year (return to port) (入港)

**PORT OF DEPARTURE** (enter name and country).....

**PORT OF RETURN** (enter name and country).....

**RESPONSIBLE LABORATORY** enter name and address of the laboratory responsible for coordinating the scientific planning of the cruise.  
担当機関 航海の観測計画を作成した担当調査機関の名称と住所を記入

Name:.....

Address:.....

Country:.....

**CHIEF SCIENTIST(S)** enter name and laboratory of the person(s) in charge of the scientific work(chief of mission) during the cruise.

観測責任者 航海中観測調査を担当した者(観測班長)の名前と所属機関を記入

**OBJECTIVES AND BRIEF NARRATIVE OF CRUISE** enter sufficient information about the purpose and nature of the cruise so as to provide the context in which the reported data were collected.

航海の目的と簡単な報告内容 収集されたデータの有効利用に供するため、航海の目的と性格について十分な情報を記入

**PROJECT (IF APPLICABLE)** if the cruise is designated as part of a larger scale cooperative project (or expedition or programme), then enter the name of the project, and of the organization responsible for coordinating the project.

(該当する場合) 航海が共同プロジェクト(または調査、計画)の一部であるならば、そのプロジェクトの名称と調整機関名を記入

Project Name:.....

Coordinating body:.....



**PRINCIPAL INVESTIGATORS:** enter the name and address of the principal investigators responsible for the data collected on the cruise, and who may be contacted for further information about the data. (the letter assigned below against each principal investigator is used on pages 2 and 3, under the column heading 'PI', to identify the data sets for which he/she is responsible)

**主調査者:** 航海で収集されたデータについて責任を持っている筆頭の調査者とデータに関する詳細な情報照会に応じる者の名前とあて先を記入。(2ページ、3ページのPI欄には、A、B、C...で記入する。)

A.....

B.....

C.....

D.....

E.....

F.....

**MOORINGS, BOTTOM MOUNTED GEAR AND DRIFTING SYSTEMS**

this section should be used for reporting moorings, bottom mounted gear and drifting systems (both surface and deep) deployed and/or recovered during the cruise. separate entries should be made for each location (only deployment positions need be given for drifting systems). this section may also be used to report data collected at fixed locations which are returned to routinely in order to construct 'long time series'.

**係留、海底設置機器、漂流システム**

係留、海底設置機器及び漂流システム(海面、海中とも)の設置と回収について記入する。各設置点ごとに記入のこと。(漂流システムについては投入した位置のみで可)

また、時系列をとるために定期的に測定される地点でのデータについてもこの欄に記入してよい。

PI <small>see top of page.</small>	APPROXIMATE POSITION						DATA TYPE <small>enter code(s) from list on cover page. リストのコードを記入</small>	DESCRIPTION <small>identify, as appropriate, the nature of the instrumentation, the parameters (to be) measured, the number of instruments and their depths, whether deployed and/or recovered, dates of deployment and/or recovery, and any identifiers given to the site. 機器の種類、測定のパラメータ、機器数とその深度、設置または回収の日付と位置</small>
	LATITUDE			LONGITUDE				
	deg	min	N/S	deg	min	E/W		

**SUMMARY OF MEASUREMENTS AND SAMPLES TAKEN**

except for the data already described on page 2 under 'moorings, bottom mounted gear and drifting systems', this section should include a summary of all data collected on the cruise, whether they be measurements (e.g. temperature, salinity values) or samples (e.g. cores, net hauls). separate entries should be made for each distinct and coherent set of measurements or samples. different modes of data collection (e.g. vertical profiles as opposed to underway measurements) should be clearly distinguished, as should measurement/sampling techniques that imply distinctly different accuracies or spatial/temporal resolutions. thus, for example, separate entries would be created for i) BT drops, ii) water bottle stations, iii) CTD casts, iv) towed CTD, v) towed undulating CTD profiler, vi) surface water intake measurements, etc. each data set entry should start on a new line - it's description may extend over several lines if necessary.

**測定とサンプル採取の概要**

2ページに記入する係留、海底設置機器、漂流システムを除く全ての測定（水温、塩分等）やサンプル（コア、ドレッジ等）によるデータに関する概要について記入のこと。

測定とサンプル毎に分けて記入のこと。データ収集の方法が異なる（例えば、航行しながらの測定と停船してセンサーを鉛直に降ろして行う測定）場合や精度や場所・時間の分解能が明らかに異なる測定／サンプリング手法の場合には区別して記入すること。例えば、BT投下、採水点、CTD投入、CTD曳航、CTD波形曳航、表面水取水口観測等は分けて記入することになる。記入はデータ毎に改行すること。必要ならば、一つのデータの記述が数行にわたっても構わない。

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PI	NO	UNITS	DATA TYPE	DESCRIPTION
	see above	see above	enter cpde(s) from list on cover page. リストのコードを記入	<p>Identify, as appropriate, the nature of the data and of the instrumentation/sampling gear and list the parameters measured. include any supplementary information that may be appropriate, e.g. vertical or horizontal profiles, depth horizons, continuous recording or discrete samples, etc. for samples taken for later analysis on shore, an indication should be given of the type of analysis planned, i.e. the purpose for which the samples were taken.</p> <p>データ、使用機器／装置の種類・特性を適宜明記し、測定されたデータ項目を列記する。水平／垂直プロファイルの別、測定層の深度、連続記録か間隔を開けたものか、等の適当な補足情報も含むこと。陸上での解析のために採取されたサンプルについては、どのような分析が行われる予定であるのか、即ちサンプルが採取された目的を記すこと。</p>

Please continue on separate sheet if necessary.

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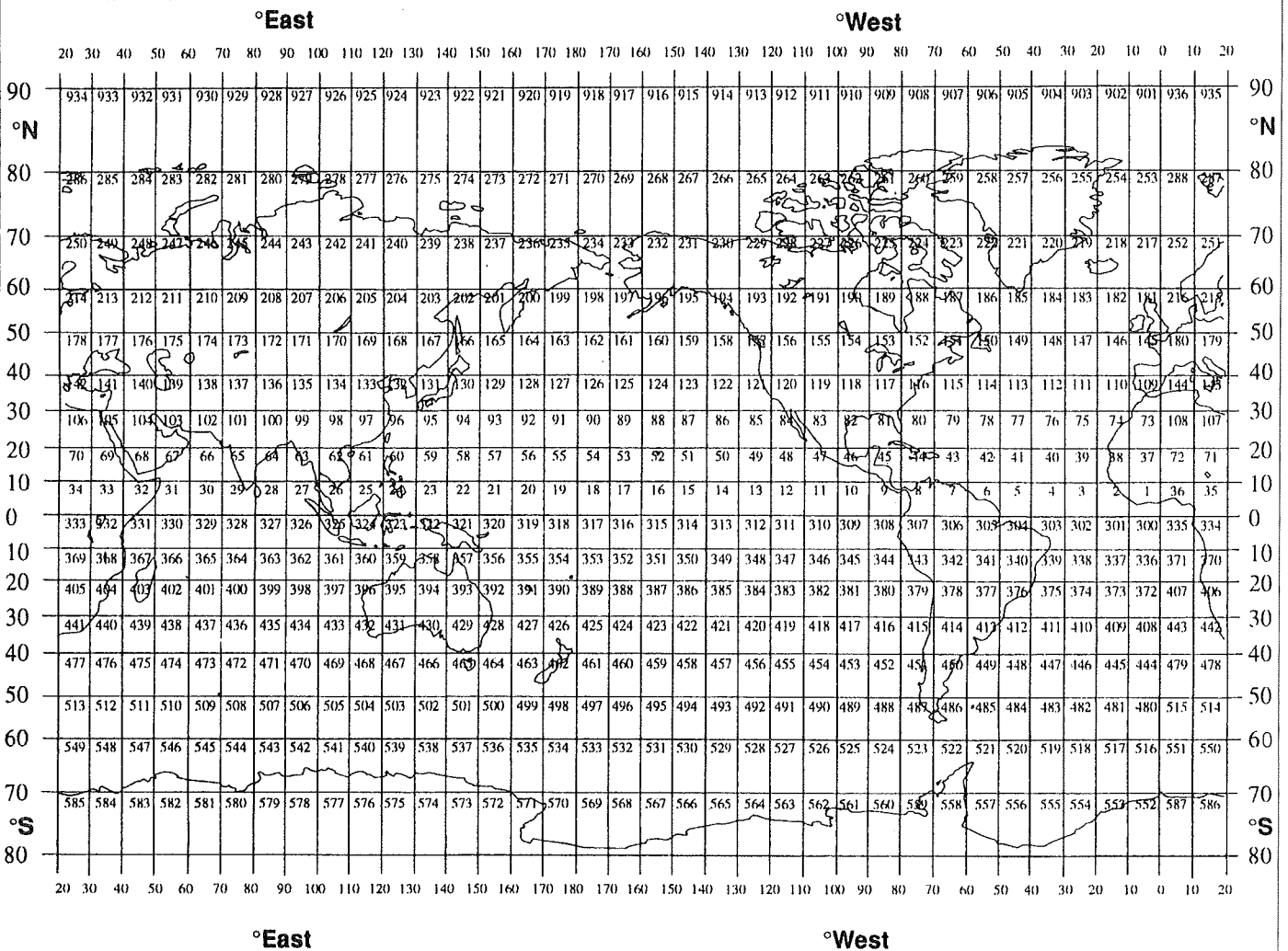
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**GEOGRAPHIC COVERAGE - INSERT 'X' IN EACH SQUARE IN WHICH DATA WERE COLLECTED**

**調査範囲**

データを収集した場所に 'X' を記入



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## 調査機関略語表

略語	調査機関名
HD, MSA	海上保安庁水路部 (Hydrographic Department, Maritime Safety Agency)
CMD, JMA	気象庁気候・海洋気象部 (Climate and Marine Department, Japan Meteorological Agency)
MRI, JMA	気象庁気象研究所 (Meteorological Research Institute, Japan Meteorological Agency)
HMO, JMA	函館海洋気象台 (Hakodate Marine Observatory, JMA)
KMO, JMA	神戸海洋気象台 (Kobe Marine Observatory, JMA)
MMO, JMA	舞鶴海洋気象台 (Maizuru Marine Observatory, JMA)
NMO, JMA	長崎海洋気象台 (Nagasaki Marine Observatory, JMA)
HU	北海道大学水産学部 (Faculty of Fisheries, Hokkaido University)
TU	東北大学 (Tohoku University)
CU	千葉大学 (Chiba University)
ORI, UT	東京大学海洋研究所 (Ocean Research Institute, The University of Tokyo)
ERI, UT	東京大学地震研究所 (Earthquake Research Institute, The University of Tokyo)
IHAS, NU	名古屋大学大気水圏科学研究所 (Inst. for Hydrospheric - Atmospheric Sciences, Nagoya University)
MU	Life01.TIF 三重大学生物資源学部 (Faculty of Bioresources, Mie University)

略 語	調 査 機 関 名
RIAM, KU	九州大学応用力学研究所 (Res. Inst. for Applied Mechanics, Kyushu University)
NU	長崎大学水産学部 (Faculty of Fisheries, Nagasaki University)
KU	鹿児島大学水産学部 (Faculty of Fisheries, Kagoshima University)
SFHS	鳥取県立境水産高等学校 (Tottori Prefectural Sakai Fishery High School)