NO. 52

MAR. 1978

CSK NEWSLETTER

JAPAN OCEANOGRAPHIC DATA CENTER

Hydrographic Department, Maritime Safety Agency

Tokyo, Japan

'78

CONTENTS

'78

I. RESOLUTIONS RELATING TO CSK ADOPTED BY THE ASSEMBLY AT THE TENTH SESSION OF THE IOC (Unesco, Paris, 27 October-10 November 1977, IOC-X/3, Annex II)

Resolution X-11

CO-OPERATIVE STUDY OF THE KUROSHIO
AND ADJACENT REGIONS/WESTERN PACIFIC

The Intergovernmental Oceanographic Commission,

A

Recalling resolutions IX-12, EC-VII.20 and EC-VIII.6,

Noting that the International Co-ordination Group for the Co-operative Study of the Kuroshio and adjacent regions(CSK) held its eleventh (and final) session in Nouméa, New Caledonia, 30 June-4 July 1977, together with the meeting of the ad hoc Task Team for the Western Pacific (WESTPAC), 27-29 June 1977,

Approves the Summary Reports of the eleventh session of the ICG for CSK (document IOC/CSK-XI/3), and of the ad hoc Task Team for the WESTPAC (document IOC/WESTPAC ad hoc-I/3);

Expresses its appreciation to the Government of France for its courtesy in hosting the above-mentioned meetings;

Instructs the Secretary, in consultation with the Division of Marine Sciences of Unesco, to approach the Government of Japan, with a request that they host the Fourth CSK Symposium in late 1978 or early 1979;

Expresses its thaks to the members of the International Co-ordination Group for CSK, and in particular its International Co-ordinator, Professor Kiyoo Wadati, for their successful operation of the co-operative study;

Decides to establish the Working Group for the Western Pacific (WESTPAC) with the terms of reference as contained in Annex V of document IOC/WESTPAC ad hoc-I/3, to invite the interested Member States to joint this Working Group and to convene the first session of this Group in conjunction with the Fourth CSK Symposium;

Instructs the Working Group for WESTPAC to hold a workshop to define the priorities among the scientific programme developed by the above-mentioned Task Team (document IOC/WESTPAC ad hoc-I/3, Annex III), in conjunction with the first meeting of the

'78

Group, taking into account the proposals made by the workshop referred to in recommendation SEATAR-III.2;

Welcomes the invitation of CCOP/SOPAC to IOC to co-operate closely with WESTPAC in the fields of marine geology and geophysics and related activities in the CCOP/SOPAC region, through a joint mechanism;

Welcomes further the invitation of CCOP to IOC to co-operate closely with WESTPAC on programmes of marine geology and geophysical research in the vicinity of the CCOP member countries;

Recommends that the countries within the various subregions of the WESTPAC, such as those of the South Pacific and of the East Asian regions, formulate their own subregional programmes in consultation with co-operating countries from outside the subregion;

Requests Member States of the IOC who wish to co-operate in the implementation of a subregion's programme, to announce their cruises well in advance and involve scientists from a subregion in the planning, execution and evaluation phases of each project;

Invites all interested Member States and international organizations to provide personnel and/or financial support for the establishment of a full-time WESTPAC Secretariat to be located within the region.

B

Noting with appreciation that the report and recommendations of the third session of the Joint CCOP-IOC Working Group on IDOE Studies of East Asia Tectonics and Resources(SEATAR), held in Manila, 27-28 September 1977, were approved by CCOP, co-sponsor of the Group, at its fourteenth session, held in Manila, 21 September - 4 October 1977,

Approves the above-mentioned report and all recommendations contained therein; and

Expresses its readiness to co-operate closely with the CCOP Seretariat in the organization and implementation of the Workshop referred to in SEATAR-III recommendation 2, to be held in Singapore in October/November 1978, in conjunction with the fourth session of SEATAR, both of which will precede the fifteenth session of CCOP.

* * * * * * * * * * * * * *

II. THE FOURTH CSK SYMPOSIUM (PRELIMINARY INFORMATION)

Following Recommendation 2 of the 11th session of ICG/CSK and IOC resolution X-11, the Japanese National Commission for UNESCO is planing to hold the Fourth CSK Symposium and has nominated Professor Dr. A. y. Takenouti, both as the convener and the chairman of its Steering Committee.
The announcement of the Symposium and call for papers will be issued officially, in due course, jointly by the Intergovernmental Oceanographic Commission and the Japanese National Commission for UNESCO. The following is the outline of the organization of the Symposium as prepared by the Steering Committee.

FOURTH SYMPOSIUM ON THE CO-OPERATIVE STUDY OF THE KUROSHIO AND ADJACENT REGIONS (CSK)

Tokyo, Japan, 14-17 February 1979

The Co-operative Study of the Kuroshio and Adjacent Regions(CSK) started in 1964 under the auspices of the Intergovernmental Oceanographic Commission of Unesco, ended its field phase in 1977. Earlier symposium have been convened: Kuroshio-I in Honolulu, Hawaii (29 April -2 May 1968); Kuroshio-II in Tokyo (28 September-1 October 1970); and Kuroshio-III in Bankok (26-29 May 1973), to review the results achieved and to discuss the perspectives of ongoing and future research in the region.

PROGRAMME: The Fourth CSK Symposium is additionally a terminal exercise; it will therefore also review the entire CSK programme and discuss the implications of these results for future international marine scientific programmes in the Western Pacific(WESTPAC).

Scientists who have taken part in CSK activities together with others interested in the marine scientific problems of the region, are invited to review and discuss results and new concepts related to the following programme outline of the 4th CSK Symposium:

(1) The Symposium will be based upon fundamental contributions to physical, chemical and biological oceanography;

(2) Interdisciplinary subjects will be covered by sessions on:

  (a) air-sea interaction;
  (b) dynamics of the Kuroshio current;
  (c) marine geochemistry;
  (d) biological productivity and living resources of the sea;
  (e) quality of the environment;

(3) Special sessions to plan future research in the Western Pacific will be included on:

'78

(a) physical, chemical and bilogical oceanography in those regions which belong to the Western Pacific, which were not covered by the CSK programme;

(b) marine geology and geophysics throughout the Western Pacific region.

SCHEDULE:

Date	Session
Feb. 14, am	Opening of Symposium
from 14, pm to 16, am	Panel Meetings
from 16, pm to 17, am	Report of Panel Chairmen, Discussion and Adoption of Report
from 17, pm to 18, am	Excursion

WORKING LANGUAGE: English

PROCEDURES AND DEADLINES: Information on intended papers should reach the Secretariat of the Steering Committee for the Fourth CSK Symposium on the form attached to the "Announcement", which will be distributed later, by 31 August 1978. Those who intend to participate and/or contribute papers to the Symposium should submit the following to the address shown below;

1. Preliminary Registration Form
2. Title and Abstract of the paper
   Approximately 100 words with the name(s) of author(s), double spaced, type written in black on white paper (ca. 21 x 27.5 cm).

A number of speakers will be invited by the Steering Committee to present comprehensive major papers which will provide focal points for the Symposium's discussion. In addition, contributed papers may be accepted by the Steering Committee. Authors from Member States which have participated in the CSK should communicate their contribution through their National Correspondent.

Interested scientists are invited to contact, in their earliest convenience, to the following address:

Address: Professor Dr. A. Y. Takenouti
c/o Secretariate
Steering Committee for the Fourth CSK Symposium
International Science Division
Ministry of Education, Science and Culture
2-2, Kasumigaseki 3-chome, Chiyoda-ku,
Tokyo 100, Japan

III. CRUISE REPORTS (ROSCOP)

ROSCOP (2nd edition)

OCEANOGRAPHY
GENERAL CRUISE INVENTORY

A00
DATA CENTRE: J.O.D.C.
REFERENCE No : R.76059

A - GENERAL INFORMATION ON WORK PERFORMED

A01 Expedition/Project: C S K
Cruise No. or name:

A91 Declared national prog.? YES ☑ NO ☐ PART ☐
Exchange restricted? YES ☐ NO ☑ PART ☐

A02 Ship or platform: Takuyo (JDRP)
Platform type: 01

A92 Co-operative programme? YES ☑ NO ☐ Name: C S K
Co-ordinated internationally? YES ☑ NO ☐ By whom? K. Wadati

A03 Country: Japan
A04 Organization: Hydrogr.Dept.,MSA(HD,MSA)
A05 Chief scientist(s): A. Kosugi

A06 NAMES AND ADDRESSES OF ORGANIZATIONS AND PERSONS

	Whom to query	Final disposition of data
a	HD, MSA	A HD, MSA; 5-3-1 Tsukiji, Chuo-Ku,
b		B Tokyo, 104 Japan
c		C

A07 Date: from: 12 05 76 (DAY MONTH YEAR)
to: 04 06 76

A08 General ocean areas: Philippine Sea
A09 Type(s) of marine zone(s): 06

A10 Geographic area: Latitude ... N/S Longitude ... E/W
If all data were collected at a fixed station, fill in the co-ordinates

Discipline and type of measurements	Index 10 x 10 (Oc L G G)	Index 1° x 1°	Discipline and type of measurements	Index 10 x 10 (Oc L G G)	Index 1° x 1°
M,HS,HP,HC,D	1 3 1 3				
M,HS,HP,HC,D	1 2 1 3				

M - METEOROLOGY

	Number	i	I	Format		Number	i	I	Format
M01 Upper air observations					M04 Ice observations				
M02 Incident radiation					M05 Occasional standard measurements	X	a	A	1
M03 Air-sea interface studies					M06 Systematic standard measurements				
					M90 Other measurements				

Remarks

H - HYDROGRAPHY

	HS SURFACE	Number	i	I	Format		NEAR SEA FLOOR (< 10 m)	Number	i	I	Format
H01	Continuous temperature recording					H05	Continuous temperature recording				
H02	Continuous salinity recording					H06	Continuous salinity recording				
H03	Discrete temperature measurements	138	a	A	1	H07	Discrete temperature measurements				
H04	Discrete salinity measurements					H08	Discrete salinity measurements				
	HP PHYSICAL						HC CHEMICAL				
H09	Classical oceanographic stations	41	a	A	1	H21	Oxygen	41	a	A	1

'78

H - HYDROGRAPHY (Continued)

	Number	i	l	Format		Number	i	l	Format
H10 Vertical profiles (STD/CTD)					H22 Phosphates	41	a	A	1
H11 sub-surface measurements underway					H23 Total - P				
H12 Mechanical bathythermograph (no. of drops)	104	a	A	1, 8	H24 Nitrates				
H13 Bathythermograph-expendable (no. of drops)	9	a	A	1, 3	H25 Nitrites				
H14 Sound velocity stations					H26 Silicates	41	a	A	1
H15 Acoustic stations					H27 Alkalinity				
H16 Transparency					H28 pH	41	a	A	1
H80 Other measurements					H31 Radioactivity	2	a	A	1

Remarks

P - POLLUTION

P01 Suspended solids					P07 Waste water : BOD				
P02 Heavy metals					P08 Waste water : Nitrates				

Remarks

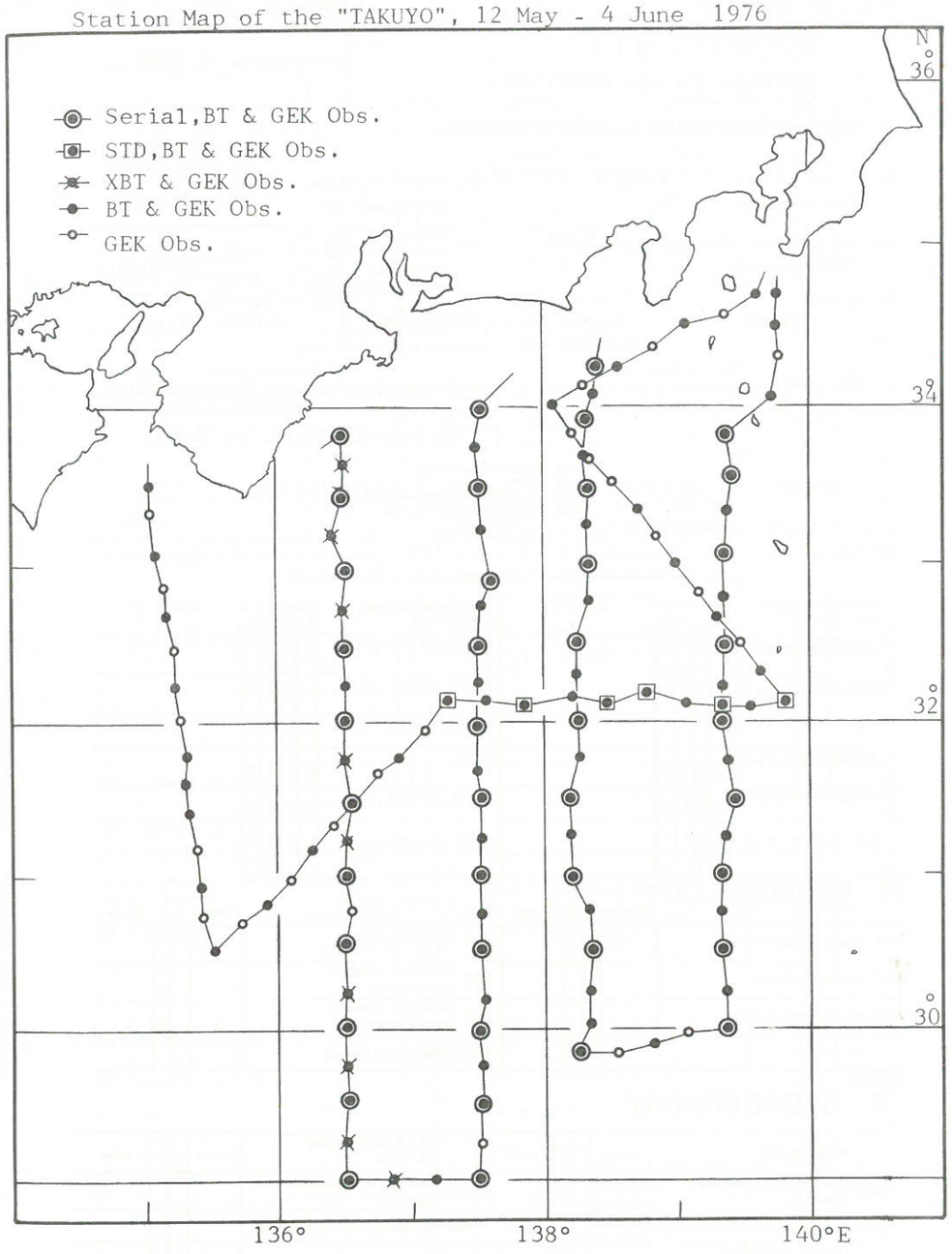
D - DYNAMICS

D01 Current meters (no. of stat.)					D07 Drift cards (no. released)				
D02 Current meters (average duration of measurement)					D08 Bottom drifters (no. released)				
D03 Currents measured from ship drift					D09 Tidal observations (duration)				
D04 GEK	138	a	A	1, 3	D10 Sea and swell (no. of observations)				
D05 Drifters (number)					D90 Other				
D06 Swallow floats (number)									

B - BIOLOGY

B02 Phytoplankton pigments					B21 Commercial benthic crustacean				
B08 Phytoplankton					B27 Deep scattering layers				
B09 Zooplankton					B28 Acoustical reflections on marine organisms				
B10 Neuston					B29 Biologic sounds				
B11 Nekton					B30 Bioluminescence				
B12 Invertebrate nekton					B31 Vitamin concentrations				
B13 Pelagic eggs and larvae					B32 Aminoacid concentration				
B14 Pelagic fish					B33 Hydrocarbon concentrations				
B18 Zoobenthos					B37 Taggings				
Remarks									
BS TYPES OF STUDIES					B60 Physiology				
B51 Identification					B61 Behaviour				

Station Map of the "TAKUYO", 12 May - 4 June 1976



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ROSCOP (2nd edition)

OCEANOGRAPHY

GENERAL CRUISE INVENTORY

A00
DATA CENTRE: J.O.D.C.
REFERENCE No : R.76066

A - GENERAL INFORMATION ON WORK PERFORMED

A01 Expedition/Project: C S K (Marine Pollut.)
Cruise No. or name: 76-06

A91 Declared national prog. ? YES ☑ NO ☐ PART ☐
Exchange restricted ? YES ☐ NO ☑ PART ☐

A02 Ship or platform: Ryofu Maru (JGZK)
Platform type: 01

A92 Co-operative programme ? YES ☑ NO ☐ Name: C S K
Co-ordinated internationally? ☑ ☐ By whom? K. Wadati

A03 Country: Japan
A04 Organization: Marine Dept.,JMA(MD,JMA)
A05 Chief scientist(s): Tsutomu Akiyama

A06 NAMES AND ADDRESSES OF ORGANIZATIONS AND PERSONS

Whom to query
a MD, JMA
b
c

Final disposition of data
A Marine Dept.,Japan Meteorological
B Agency ; 1-3-4 Ohte-machi,
C Chiyoda-Ku, Tokyo, 104 Japan

A07 Date : from: 1.1|0.6|7.6 (DAY MONTH YEAR)
to: 0.9|0.8|7.6

A08 General ocean areas: N.W. Pacific & Philippine Sea
A09 Type(s) of marine zone(s): 06,07

A10 Geographic area Latitude ... N/S Longitude ... E/W

If all data were collected at a fixed station, fill in the co-ordinates

Discipline and type of measurements	Index 10 x 10 Oc	L	G	G	Index 1° x 1°	Discipline and type of measurements	Index 10 x 10 Oc	L	G	G	Index 1° x 1°
M,HS,HP,P,B,HC,D	1	3	1	4		M,HS,HP,HC,P,B,D	3	0	1	3	
M,HS,HP,HC,P,B,	1	2	1	5		M,HS,HP,HC,P,B,D	1	0	1	3	
M,HS,HP,HC,P,B	1	1	1	5		M,HS,HP,HC,P,B	1	1	1	3	
M,HS,HP,HC,P,B,D	1	0	1	5		M,HS	1	1	1	2	
M,HS,HP,HC,P,B,D	3	0	1	5		M,HS,HP,HC,P,B	1	2	1	3	
M,HS,HP,HC,P,B	3	1	1	5		M,HS,HP,HC,P,B	1	3	1	3	
M,HS	3	0	1	4							

M - METEOROLOGY

	Number	I	I	Format		Number	I	I	Format
M01 Upper air observations					M04 Ice observations				
M02 Incident radiation					M05 Occasional standard measurements				
M03 Air-sea interface studies					M06 Systematic standard measurements	X	a	A	1
					M90 Other measurements				

Remarks

H - HYDROGRAPHY

HS SURFACE	Number	I	I	Format	NEAR SEA FLOOR (< 10 m)	Number	I	I	Format
H01 Continuous temperature recording	8000 miles	a	A	3	H05 Continuous temperature recording				
H02 Continuous salinity recording	8000 miles	a	A	3	H06 Continuous salinity recording				
H03 Discrete temperature measurements					H07 Discrete temperature measurements				
H04 Discrete salinity measurements					H08 Discrete salinity measurements				
HP PHYSICAL					HC CHEMICAL				
H09 Classical oceanographic stations	107	a	A	4	H21 Oxygen	107	a	A	4

H - HYDROGRAPHY (Continued)

	Number	I	I	Format		Number	I	I	Format
H10 Vertical profiles (STD/CTD)					H22 Phosphates	83	a	A	4
H11 sub-surface measurements underway					H23 Total - P	20	a	A	4
H12 Mechanical bathythermograph (no. of drops)					H24 Nitrates	20	a	A	4
H13 Bathythermograph-expendable (no. of drops)	107	a	A	3	H25 Nitrites	20	a	A	4
H14 Sound velocity stations					H26 Silicates				
H15 Acoustic stations					H27 Alkalinity				
H16 Transparency	51	a	A	4	H28 pH	20	a	A	4
H80 Other measurements					H30 Trace elements	19	a	A	1

Remarks

P - POLLUTION

P01 Suspended solids					P07 Waste water : BOD				
P02 Heavy metals	19	a	A	1	P08 Waste water : Nitrates				

Remarks

D - DYNAMICS

D01 Current meters (no. of stat.)	28 (15min.)	a	A	1	D07 Drift cards (no. released)				
D02 Current meters (average duration of measurement)					D08 Bottom drifters (no. released)				
D03 Currents measured from ship drift					D09 Tidal observations (duration)				
D04 GEK	5	a	A	1	D10 Sea and swell (no. of observations)				
D05 Drifters (number)					D90 Other				
D06 Swallow floats (number)									

B - BIOLOGY

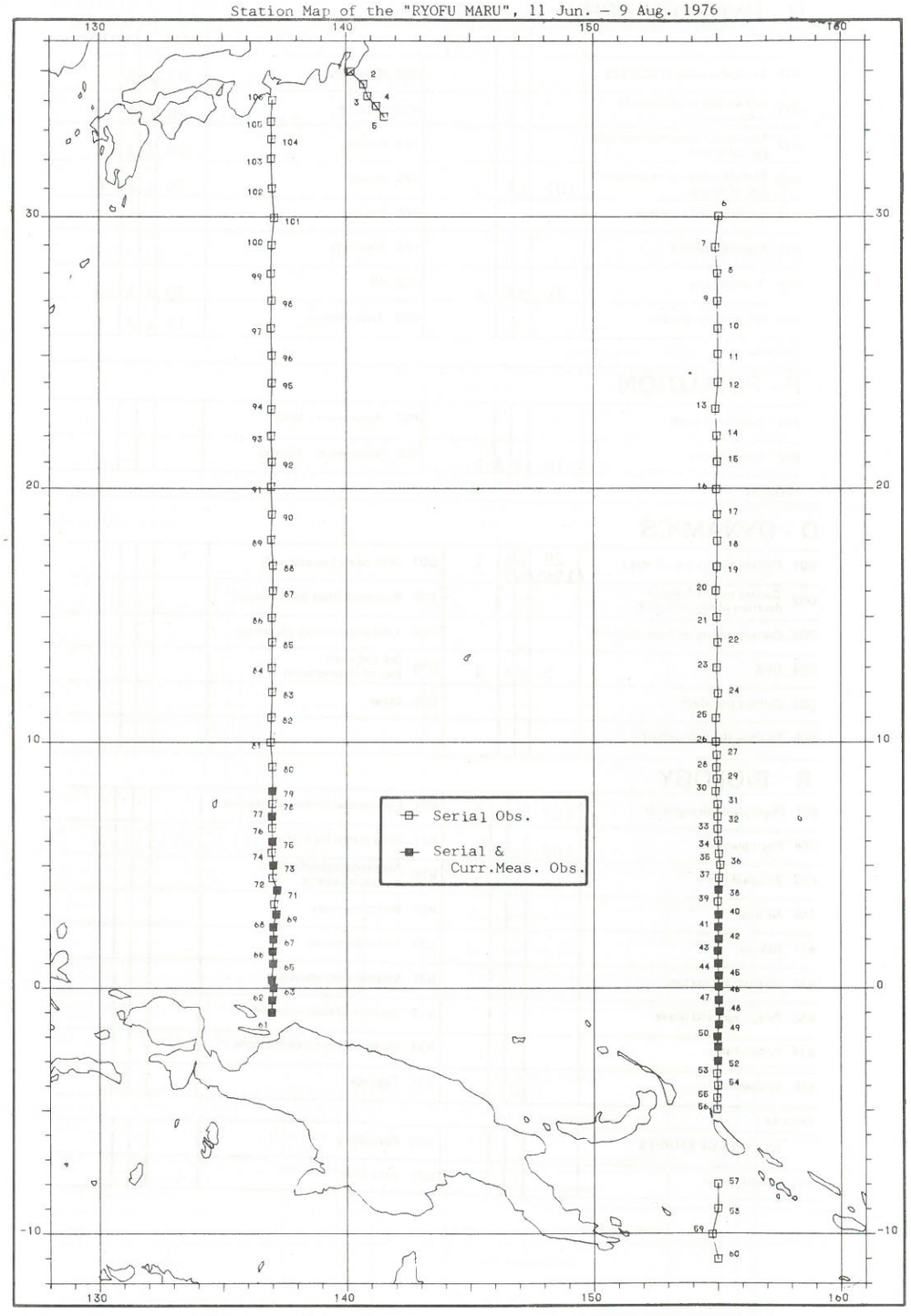
B02 Phytoplankton pigments	107	a	A	1	B21 Commercial benthic crustacean				
B08 Phytoplankton	107	a	A	1	B27 Deep scattering layers				
B09 Zooplankton	83	a	A	1	B28 Acoustical reflections on marine organisms				
B10 Neuston					B29 Biologic sounds				
B11 Nekton					B30 Bioluminescence				
B12 Invertebrate nekton					B31 Vitamin concentrations				
B13 Pelagic eggs and larvae					B32 Aminoacid concentration				
B14 Pelagic fish					B33 Hydrocarbon concentrations				
B18 Zoobenthos					B37 Taggings				

Remarks

BS TYPES OF STUDIES					B60 Physiology				
B51 Identification					B61 Behaviour				

'78

Station Map of the "RYOFU MARU", 11 Jun. – 9 Aug. 1976



ROSCOP (2nd edition)

OCEANOGRAPHY

GENERAL CRUISE INVENTORY

A00
DATA CENTRE: J.O.D.C.
REFERENCE No : R.76069

A - GENERAL INFORMATION ON WORK PERFORMED

A01 Expedition/Project: C S K
Cruise No. or name: 76-06

A91 Declared national prog.? YES ☑ NO ☐ PART ☐
Exchange restricted? YES ☐ NO ☑ PART ☐

A02 Ship or platform: Kofu Maru (8JNZ)
Platform type: 01

A92 Co-operative programme? YES ☑ NO ☐ Name: C S K
Co-ordinated internationally? ☑ ☐ By whom? K. Wadati

A03 Country: Japan

A04 Organization: (HMO) Hakodate Marine Observatory

A05 Chief scientist(s): S. Kuronuma

A06 NAMES AND ADDRESSES OF ORGANIZATIONS AND PERSONS

Whom to query
a HMO
b
c

Final disposition of data
A HMO; 181 Akagawadoricho,Hakodate
B
C

A07 Date: from: 04 08 76 (DAY MONTH YEAR)
to: 30 08 76

A08 General ocean areas: N.W. Pacific

A09 Type(s) of marine zone(s): 04, 06

A10 Geographic area: Latitude ____ N/S Longitude ____ E/W

If all data were collected at a fixed station, fill in the co-ordinates

Discipline and type of measurements	Index 10 x 10 Oc	L	G	G	Index 1° x 1°	Discipline and type of measurements	Index 10 x 10 Oc	L	G	G	Index 1° x 1°
M,HS,HP,HC,D	1	3	1	4							
M,HS,HP,HC,D	1	4	1	4							

M - METEOROLOGY

	Number	i	l	Format		Number	i	l	Format
M01 Upper air observations					M04 Ice observations				
M02 Incident radiation					M05 Occasional standard measurements				
M03 Air-sea interface studies					M06 Systematic standard measurements	X	a	A	1
					M90 Other measurements				

Remarks

H - HYDROGRAPHY

	HS SURFACE	Number	i	l	Format		NEAR SEA FLOOR (≤ 10 m)	Number	i	l	Format
H01	Continuous temperature recording	X	a	A	3	H05	Continuous temperature recording				
H02	Continuous salinity recording	X	a	A	3	H06	Continuous salinity recording				
H03	Discrete temperature measurements					H07	Discrete temperature measurements				
H04	Discrete salinity measurements					H08	Discrete salinity measurements				
	HP PHYSICAL						HC CHEMICAL				
H09	Classical oceanographic stations	31	a	A	1	H21	Oxygen	31	a	A	1

78

H - HYDROGRAPHY (Continued)

		Number						Number			
H10	Vertical profiles (STD/CTD)					H22	Phosphates	31	a	A	1
H11	sub-surface measurements underway					H23	Total - P				
H12	Mechanical bathythermograph (no. of drops)	109	a	A	8	H24	Nitrates				
H13	Bathythermograph-expendable (no. of drops)					H25	Nitrites				
H14	Sound velocity stations					H26	Silicates				
H15	Acoustic stations					H27	Alkalinity				
H16	Transparency					H28	pH				
H80	Other measurements					H31	Radioactivity				

Remarks

P - POLLUTION

P01	Suspended solids					P07	Waste water : BOD				
P02	Heavy metals					P08	Waste water : Nitrates				

Remarks

D - DYNAMICS

D01	Current meters (no. of stat.)					D07	Drift cards (no. released)				
D02	Current meters (average duration of measurement)					D08	Bottom drifters (no. released)				
D03	Currents measured from ship drift					D09	Tidal observations (duration)				
D04	GEK	108	a	A	1	D10	Sea and swell (no. of observations)				
D05	Drifters (number)					D90	Other				
D06	Swallow floats (number)										

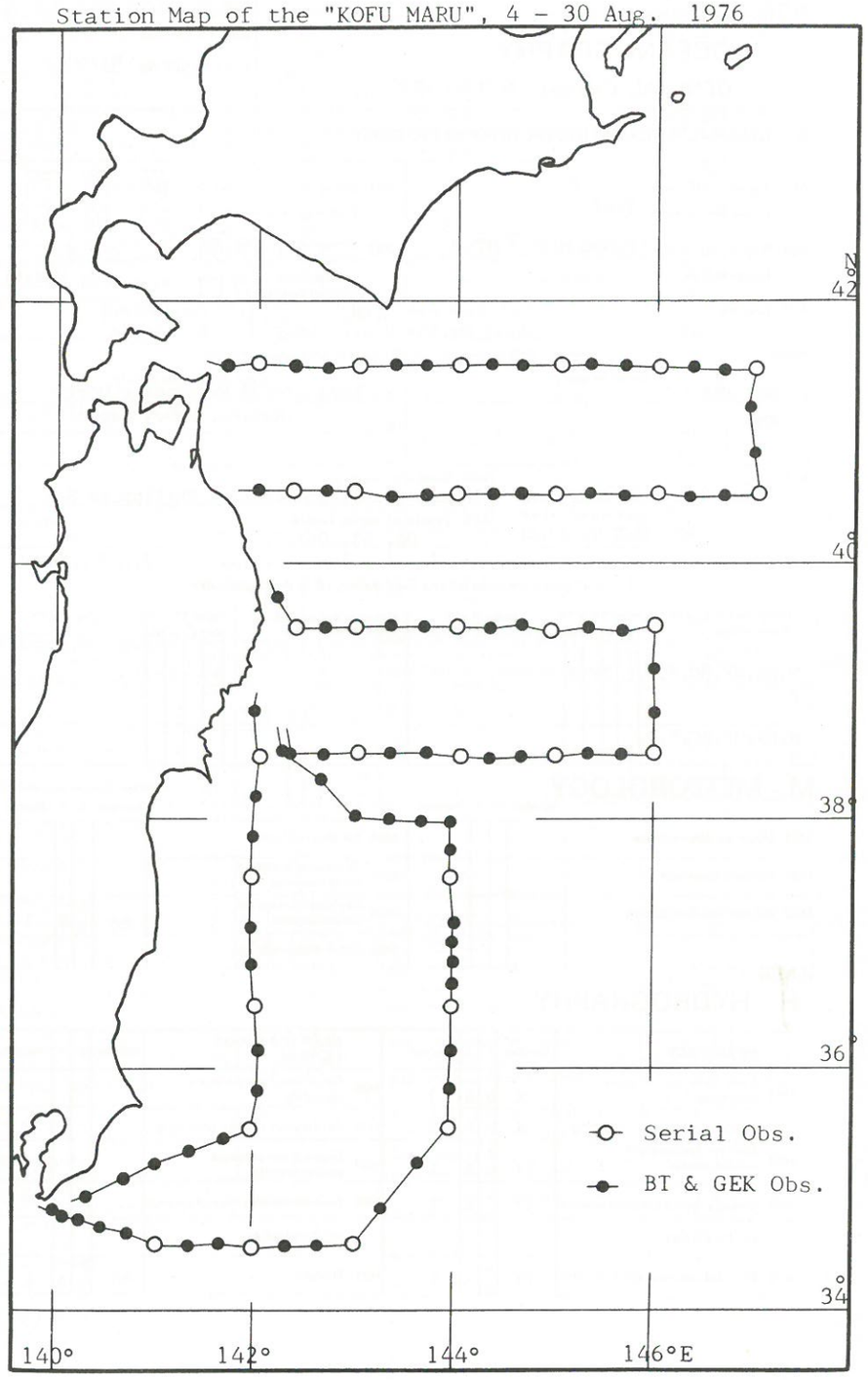
B - BIOLOGY

B02	Phytoplankton pigments					B21	Commercial benthic crustacean				
B08	Phytoplankton					B27	Deep scattering layers				
B09	Zooplankton					B28	Acoustical reflections on marine organisms				
B10	Neuston					B29	Biologic sounds				
B11	Nekton					B30	Bioluminescence				
B12	Invertebrate nekton					B31	Vitamin concentrations				
B13	Pelagic eggs and larvae					B32	Aminoacid concentration				
B14	Pelagic fish					B33	Hydrocarbon concentrations				
B18	Zoobenthos					B37	Taggings				

Remarks

	B5 TYPES OF STUDIES					B60	Physiology				
B51	Identification					B61	Behaviour				

Station Map of the "KOFU MARU", 4 - 30 Aug. 1976



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ROSCOP (2nd edition)

OCEANOGRAPHY

GENERAL CRUISE INVENTORY

A00
DATA CENTRE: J.O.D.C.
REFERENCE No : R.76062

A - GENERAL INFORMATION ON WORK PERFORMED

A01 Expedition/Project: C S K
Cruise No. or name: 7607

A91 Declared national prog. ? YES ☑ NO ☐ PART ☐
Exchange restricted ? ☐ ☑ ☐

A02 Ship or platform: Shumpu Maru (JFDG)
Platform type: 01

A92 Co-operative programme ? YES ☑ NO ☐ Name: C S K
Co-ordinated internationally? ☑ ☐ By whom? K. Wadati

A03 Country: Japan

A04 Organization: (KMO) Kobe Marine Observatory

A05 Chief scientist(s): K. Kuroda

A06 NAMES AND ADDRESSES OF ORGANIZATIONS AND PERSONS

Whom to query
a MD, JMA
b KMO
c

Final disposition of data
A KMO; 7-178 Nakayamate Dori, Ikutaku, Kobe, Japan
B
C

A07 Date: from: 02 10 71 76 (DAY MONTH YEAR)
to: 28 10 71 76

A08 General ocean areas: Inland Sea(Seto Naikai) & Philippine Sea

A09 Type(s) of marine zone(s): 04, 05, 06

A10 Geographic area — Latitude ... N/S — Longitude ... E/W

If all data were collected at a fixed station, fill in the co-ordinates

Discipline and type of measurements	Index 10 x 10 Oc	L	G	G	Index 1° x 1°
M,HS,HP,HC,P,D,B	1	3	1	3	
M,HS,HP,HC,P,D,B	1	2	1	3	

M - METEOROLOGY

	Number	i	I	Format
M01 Upper air observations				
M02 Incident radiation				
M03 Air-sea interface studies				
M04 Ice observations				
M05 Occasional standard measurements				
M06 Systematic standard measurements	86	a b	A	1
M90 Other measurements				

Remarks

H - HYDROGRAPHY

	HS SURFACE	Number	i	I	Format
H01	Continuous temperature recording	X	b	A	3
H02	Continuous salinity recording	X	b	A	3
H03	Discrete temperature measurements	87	a b	A	1
H04	Discrete salinity measurements	87	a b	A	1
	HP PHYSICAL				
H09	Classical oceanographic stations	30	a b	A	1

	NEAR SEA FLOOR (≤ 10 m)	Number	i	I	Format
H05	Continuous temperature recording				
H06	Continuous salinity recording				
H07	Discrete temperature measurements				
H08	Discrete salinity measurements				
	HC CHEMICAL				
H21	Oxygen	30	a b	A	1

H - HYDROGRAPHY (Continued)

		Number	i	I	Format
H10	Vertical profiles (STD/CTD)	10	b	A	3
H11	sub-surface measurements underway				
H12	Mechanical bathythermograph (no. of drops)	76	a b	A	1, 8
H13	Bathythermograph-expendable (no. of drops)				
H14	Sound velocity stations				
H15	Acoustic stations				
H16	Transparency	24	a b	A	1
H80	Other measurements				

		Number	i	I	Format
H22	Phosphates	27	a b	A	1
H23	Total - P	4	a b	A	1
H24	Nitrates	4	a b	A	1
H25	Nitrites	27	a b	A	1
H26	Silicates				
H27	Alkalinity				
H28	pH	15	a b	A	1
H31	Radioactivity				

Remarks

P - POLLUTION

		Number	i	I	Format
P01	Suspended solids				
P02	Heavy metals	4	a b	A	1
P07	Waste water : BOD				
P08	Waste water : Nitrates				

Remarks

D - DYNAMICS

		Number	i	I	Format
D01	Current meters (no. of stat.)				
D02	Current meters (average duration of measurement)				
D03	Currents measured from ship drift				
D04	GEK	74	a b	A	1, 3
D05	Drifters (number)				
D06	Swallow floats (number)				
D07	Drift cards (no. released)				
D08	Bottom drifters (no. released)				
D09	Tidal observations (duration)				
D10	Sea and swell (no. of observations)				
D90	Other				

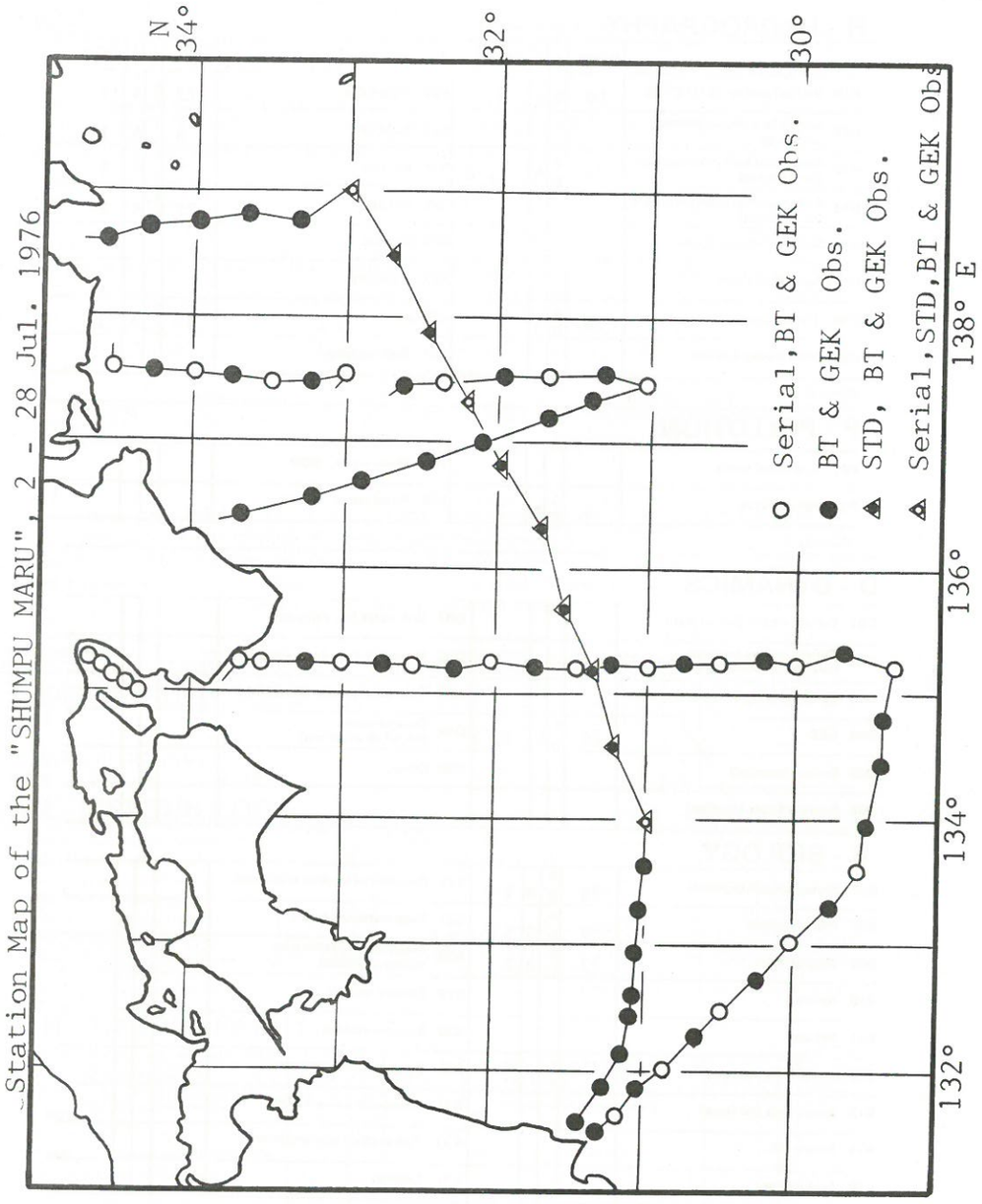
B - BIOLOGY

		Number	i	I	Format
B02	Phytoplankton pigments	22	a b	A	1
B08	Phytoplankton	9	a b	A	1
B09	Zooplankton	22	a b	A	1
B10	Neuston				
B11	Nekton				
B12	Invertebrate nekton				
B13	Pelagic eggs and larvae				
B14	Pelagic fish				
B18	Zoobenthos				
B21	Commercial benthic crustacean				
B27	Deep scattering layers				
B28	Acoustical reflections on marine organisms				
B29	Biologic sounds				
B30	Bioluminescence				
B31	Vitamin concentrations				
B32	Aminoacid concentration				
B33	Hydrocarbon concentrations				
B37	Taggings				

Remarks

	BS TYPES OF STUDIES				
B51	Identification				
B60	Physiology				
B61	Behaviour				

'78



ROSCOP (2nd edition)

OCEANOGRAPHY

GENERAL CRUISE INVENTORY

A00
DATA CENTRE: J.O.D.C.
REFERENCE No : R.76064

A - GENERAL INFORMATION ON WORK PERFORMED

A01 Expedition/Project: C S K
Cruise No. or name: 76-07

A91 Declared national prog.? YES ☑ NO ☐ PART ☐
Exchange restricted? YES ☐ NO ☑ PART ☐

A02 Ship or platform: Chofu Maru(JPQX)
Platform type: 01

A92 Co-operative programme? YES ☑ NO ☐ Name: C S K
Co-ordinated internationally? YES ☑ NO ☐ By whom? K. Wadati

A03 Country: Japan
A04 Organization: (NMO) Nagasaki Marine Observatory
A05 Chief scientist(s):

A06 NAMES AND ADDRESSES OF ORGANIZATIONS AND PERSONS

	Whom to query	Final disposition of data
a	NMO	A NMO; 11-51, Minamiyamate-cho,Nagasaki
b	MD,JMA	B MD, JMA; 1-3-4 Ote-machi,Chiyoda-Ku, Tokyo, 104 Japan
c		C

A07 Date: from: 1 0 0 7 7 6 (DAY MONTH YEAR)
to: 0 6 0 8 7 6

A08 General ocean areas: East China Sea (Tung Hai)
A09 Type(s) of marine zone(s):

A10 Geographic area: Latitude ... N/S Longitude ... E/W
If all data were collected at a fixed station, fill in the co-ordinates

Discipline and type of measurements	Index 10 x 10 Oc	L	G	G	Index 1° x 1°	Discipline and type of measurements	Index 10 x 10 Oc	L	G	G	Index 1° x 1°
M,HS,HP,P,D,B	1	2	1	2							
M,HS,HP,D	1	3	1	2							

M - METEOROLOGY

	Number	i	I	Format		Number	i	I	Format
M01 Upper air observations					M04 Ice observations				
M02 Incident radiation					M05 Occasional standard measurements				
M03 Air-sea interface studies					M06 Systematic standard measurements	118	a	A	1
					M90 Other measurements				

Remarks

H - HYDROGRAPHY

	HS SURFACE	Number	i	I	Format		NEAR SEA FLOOR (≤ 10 m)	Number	i	I	Format
H01	Continuous temperature recording	X	a	A	3	H05	Continuous temperature recording				
H02	Continuous salinity recording	X	a	A	3	H06	Continuous salinity recording				
H03	Discrete temperature measurements					H07	Discrete temperature measurements	23	a	A	1
H04	Discrete salinity measurements					H08	Discrete salinity measurements	23	a	A	1
	HP PHYSICAL						HC CHEMICAL				
H09	Classical oceanographic stations	46	a	A	1	H21	Oxygen	45	a	A	1

'78

H - HYDROGRAPHY (Continued)

		Number			Format			Number			Format
H10	Vertical profiles (STD/CTD)					H22	Phosphates	9	a	A	1
H11	sub-surface measurements underway					H23	Total - P	3	a	A	1
H12	Mechanical bathythermograph (no. of drops)	82	a	A	8	H24	Nitrates	3	a	A	1
H13	Bathythermograph-expendable (no. of drops)	14	a	A	3	H25	Nitrites	19	a	A	1
H14	Sound velocity stations					H26	Silicates				
H15	Acoustic stations					H27	Alkalinity				
H16	Transparency	23	a	A	1	H28	pH	3	a	A	1
H80	Other measurements					H90	**Other measurements** COD	3	a	A	1
							NH_3-N	3	a	A	1

Remarks

P - POLLUTION

P01	Suspended solids					P07	Waste water : BOD				
P02	Heavy metals	2	b	B	1	P08	Waste water : Nitrates				

Remarks

D - DYNAMICS

D01	Current meters (no. of stat.)					D07	Drift cards (no. released)				
D02	Current meters (average duration of measurement)					D08	Bottom drifters (no. released)				
D03	Currents measured from ship drift					D09	Tidal observations (duration)				
D04	GEK	58	a	A	1	D10	Sea and swell (no. of observations)				
D05	Drifters (number)					D90	Other				
D06	Swallow floats (number)										

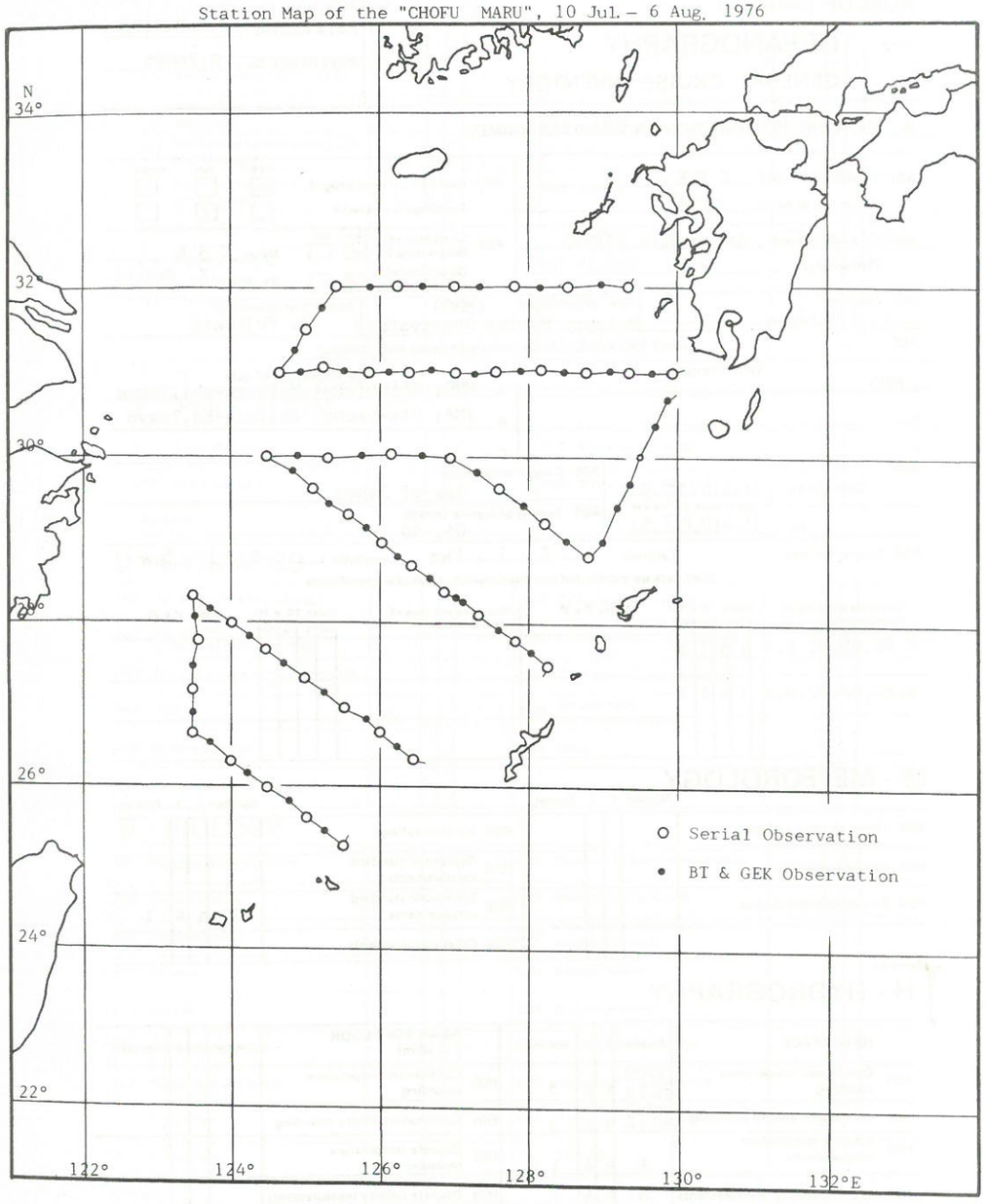
B - BIOLOGY

B02	Phytoplankton pigments	26	a	A	1	B21	Commercial benthic crustacean				
B08	Phytoplankton	9	a	A	1	B27	Deep scattering layers				
B09	Zooplankton	9	a	A	1	B28	Acoustical reflections on marine organisms				
B10	Neuston					B29	Biologic sounds				
B11	Nekton					B30	Bioluminescence				
B12	Invertebrate nekton					B31	Vitamin concentrations				
B13	Pelagic eggs and larvae					B32	Aminoacid concentration				
B14	Pelagic fish					B33	Hydrocarbon concentrations				
B18	Zoobenthos					B37	Taggings				

Remarks

	BS TYPES OF STUDIES					B60	Physiology				
B51	Identification					B61	Behaviour				

Station Map of the "CHOFU MARU", 10 Jul. – 6 Aug. 1976



'78

ROSCOP (2nd edition)

OCEANOGRAPHY
GENERAL CRUISE INVENTORY

A00
DATA CENTRE: J.O.D.C.
REFERENCE No : R.76065

A - GENERAL INFORMATION ON WORK PERFORMED

A01 Expedition/Project: C S K
Cruise No. or name: 76-07

A91 Declared national prog.? YES ☑ NO ☐ PART ☐
Exchange restricted? YES ☐ NO ☑ PART ☐

A02 Ship or platform: Seifu Maru (JPVB)
Platform type: 01

A92 Co-operative programme? YES ☑ NO ☐ Name: C S K
Co-ordinated internationally? YES ☑ NO ☐ By whom? K. Wadati

A03 Country: Japan
A04 Organization: (MMO) Maizuru Marine Observatory
A05 Chief scientist(s): I. Fujiwara

A06 NAMES AND ADDRESSES OF ORGANIZATIONS AND PERSONS

Whom to query	Final disposition of data
a MMO	A MMO; Shimofukui,Maizuru-shi,Japan
b	B JMA; Ote-machi, Chiyoda-Ku,Tokyo
c	C

A07 Date: from: 0 8 | 0 7 | 7 6 (DAY MONTH YEAR)
to: 1 4 | 0 8 | 7 6

A08 General ocean areas: Sea of Japan
A09 Type(s) of marine zone(s): 04, 06

A10 Geographic area — Latitude . . . N/S — Longitude . . . E/W
If all data were collected at a fixed station, fill in the co-ordinates

Discipline and type of measurements	Index 10 x 10 Oc	L	G	G	Index 1° x 1°	Discipline and type of measurements	Index 10 x 10 Oc	L	G	G	Index 1° x 1°
M HS.HP.HC D,B	1	3	1	3							
M,HS,HP,HC,D,B	1	4	1	3							

M - METEOROLOGY

	Number	i	I	Format		Number	i	I	Format
M01 Upper air observations					M04 Ice observations				
M02 Incident radiation					M05 Occasional standard measurements				
M03 Air-sea interface studies					M06 Systematic standard measurements	X	a	A	1
					M90 Other measurements				

Remarks

H - HYDROGRAPHY

HS SURFACE	Number	i	I	Format	NEAR SEA FLOOR (≤ 10 m)	Number	i	I	Format
H01 Continuous temperature recording	3700 mile	a	A	3	H05 Continuous temperature recording				
H02 Continuous salinity recording	3700 mile	a	A	3	H06 Continuous salinity recording				
H03 Discrete temperature measurements	X	a	A	1	H07 Discrete temperature measurements				
H04 Discrete salinity measurements	X	a	A	1	H08 Discrete salinity measurements				
HP PHYSICAL					HC CHEMICAL				
H09 Classical oceanographic stations	50	a	A	1	H21 Oxygen	50	a	A	1

H - HYDROGRAPHY (Continued)

	Number	i	I	Format		Number	i	I	Format
H10 Vertical profiles (STD/CTD)					H22 Phosphates				
H11 sub-surface measurements underway					H23 Total - P				
H12 Mechanical bathythermograph (no. of drops)	26	a	A	1, 8	H24 Nitrates				
H13 Bathythermograph-expendable (no. of drops)	42	a	A	1, 3	H25 Nitrites				
H14 Sound velocity stations					H26 Silicates	23	a	A	1
H15 Acoustic stations					H27 Alkalinity				
H16 Transparency					H28 pH	23	a	A	1
H80 Other measurements					H31 Radioactivity				

Remarks

P - POLLUTION

P01 Suspended solids					P07 Waste water : BOD				
P02 Heavy metals					P08 Waste water : Nitrates				

Remarks

D - DYNAMICS

D01 Current meters (no. of stat.)					D07 Drift cards (no. released)				
D02 Current meters (average duration of measurement)					D08 Bottom drifters (no. released)				
D03 Currents measured from ship drift					D09 Tidal observations (duration)				
D04 GEK	94	a	A	1, 3	D10 Sea and swell (no. of observations)				
D05 Drifters (number)					D90 Other				
D06 Swallow floats (number)									

B - BIOLOGY

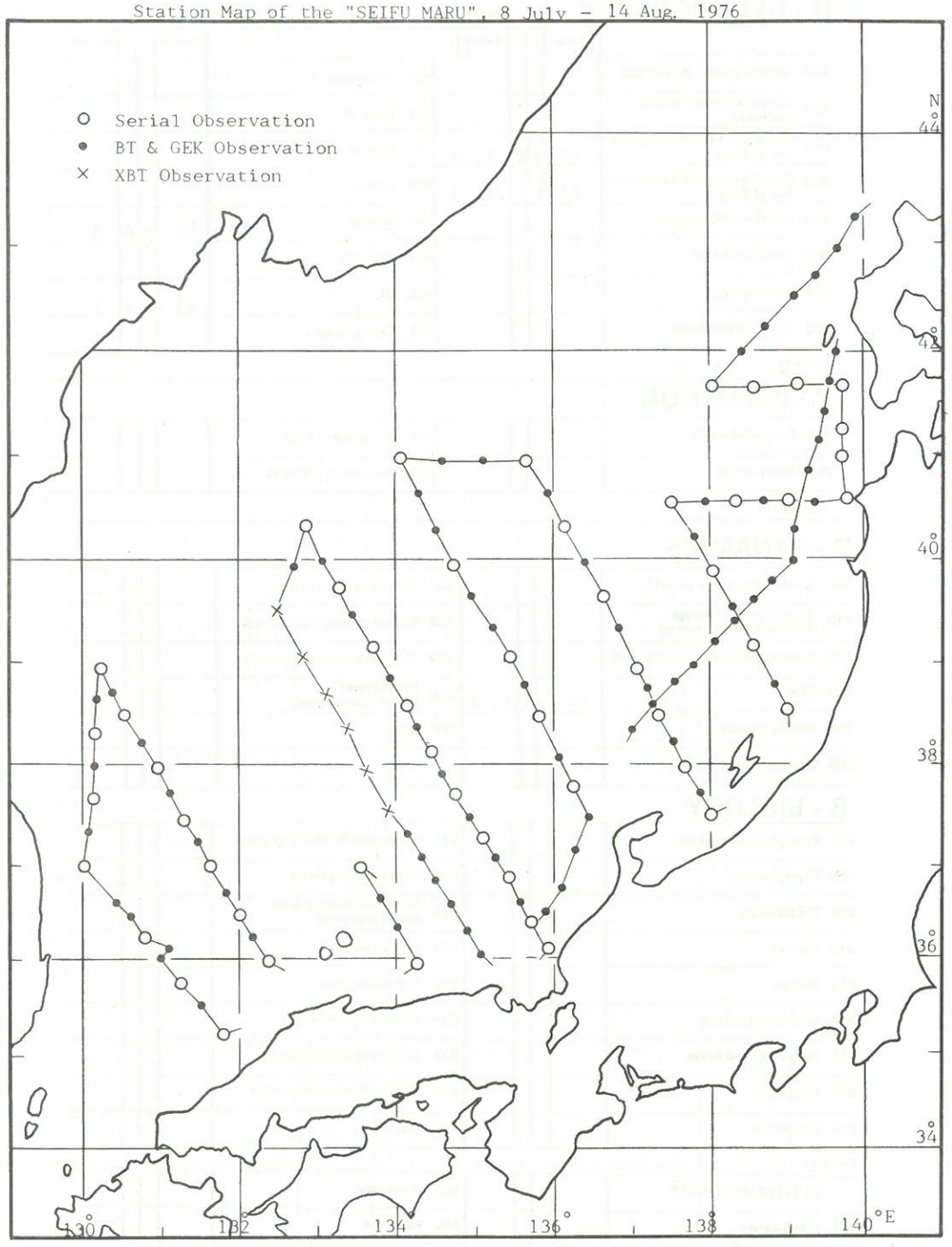
B02 Phytoplankton pigments					B21 Commercial benthic crustacean				
B08 Phytoplankton					B27 Deep scattering layers				
B09 Zooplankton					B28 Acoustical reflections on marine organisms				
B10 Neuston					B29 Biologic sounds				
B11 Nekton					B30 Bioluminescence				
B12 Invertebrate nekton					B31 Vitamin concentrations				
B13 Pelagic eggs and larvae					B32 Aminoacid concentration				
B14 Pelagic fish					B33 Hydrocarbon concentrations				
B18 Zoobenthos					B37 Taggings				

Remarks

BS TYPES OF STUDIES					B60 Physiology				
B51 Identification					B61 Behaviour				

'78

Station Map of the "SEIFU MARU", 8 July - 14 Aug. 1976



ROSCOP (2nd edition)

OCEANOGRAPHY

GENERAL CRUISE INVENTORY

A00
DATA CENTRE: J.O.D.C.
REFERENCE No : R.76063

A - GENERAL INFORMATION ON WORK PERFORMED

A01 Expedition/Project: C S K
Cruise No. or name:

A91 Declared national prog.? YES ✓ NO PART
Exchange restricted? NO ✓

A02 Ship or platform: Kaiyo (8LYT)
Platform type: 01

A92 Co-operative programme? YES ✓ NO — Name: C S K
Co-ordinated internationally? ✓ — By whom? K. Wadati

A03 Country: Japan
A04 Organization: Hydrogr.Dept.,MSA(HD,MSA)
A05 Chief scientist(s): A. Kosugi

A06 NAMES AND ADDRESSES OF ORGANIZATIONS AND PERSONS

Whom to query
a HD, MSA
b
c

Final disposition of data
A HD, MSA; 5-3-1 Tsukiji, Chuo-Ku, Tokyo, 104 Japan
B
C

A07 Date: from: 10 9 10 8 17 6 (DAY MONTH YEAR)
to: 25 10 8 17 6

A08 General ocean areas: Philippine Sea
A09 Type(s) of marine zone(s): 06

A10 Geographic area — Latitude ... N/S — Longitude ... E/W
If all data were collected at a fixed station, fill in the co-ordinates

Discipline and type of measurements	Index 10 x 10 Oc	L	G	G	Index 1° x 1°	Discipline and type of measurements	Index 10 x 10 Oc	L	G	G	Index 1° x 1°
M,HS,HP,HC,D	1	3	1	3							
M,HS,HP,HC,D	1	3	1	4							

M - METEOROLOGY

	Number	i	I	Format		Number	i	I	Format
M01 Upper air observations					M04 Ice observations				
M02 Incident radiation					M05 Occasional standard measurements	X	a	A	1
M03 Air-sea interface studies					M06 Systematic standard measurements				
					M90 Other measurements				

Remarks

H - HYDROGRAPHY

HS SURFACE	Number	i	I	Format	NEAR SEA FLOOR (⩽ 10 m)	Number	i	I	Format
H01 Continuous temperature recording					H05 Continuous temperature recording				
H02 Continuous salinity recording					H06 Continuous salinity recording				
H03 Discrete temperature measurements	94	a	A	1	H07 Discrete temperature measurements				
H04 Discrete salinity measurements					H08 Discrete salinity measurements				
HP PHYSICAL					HC CHEMICAL				
H09 Classical oceanographic stations	23	a	A	1	H21 Oxygen	23	a	A	1

'78

H - HYDROGRAPHY (Continued)

		Number			Format			Number			Format
H10	Vertical profiles (STD/CTD)					H22	Phosphates	22	a	A	1
H11	sub-surface measurements underway					H23	Total - P	3	a	A	1
H12	Mechanical bathythermograph (no. of drops)	127	a	A	8	H24	Nitrates	14	a	A	1
H13	Bathythermograph-expendable (no. of drops)	6	a	A	8	H25	Nitrites	17	a	A	1
H14	Sound velocity stations					H26	Silicates				
H15	Acoustic stations					H27	Alkalinity				
H16	Transparency	24	a	A	1	H28	pH	3	a	A	1
H80	Other measurements					H31	Radioactivity				

Remarks

P - POLLUTION

P01	Suspended solids					P07	Waste water : BOD				
P02	Heavy metals					P08	Waste water : Nitrates				

Remarks

D - DYNAMICS

D01	Current meters (no. of stat.)					D07	Drift cards (no. released)				
D02	Current meters (average duration of measurement)					D08	Bottom drifters (no. released)				
D03	Currents measured from ship drift					D09	Tidal observations (duration)				
D04	GEK	119	a	A	1	D10	Sea and swell (no. of observations)				
D05	Drifters (number)					D90	Other				
D06	Swallow floats (number)										

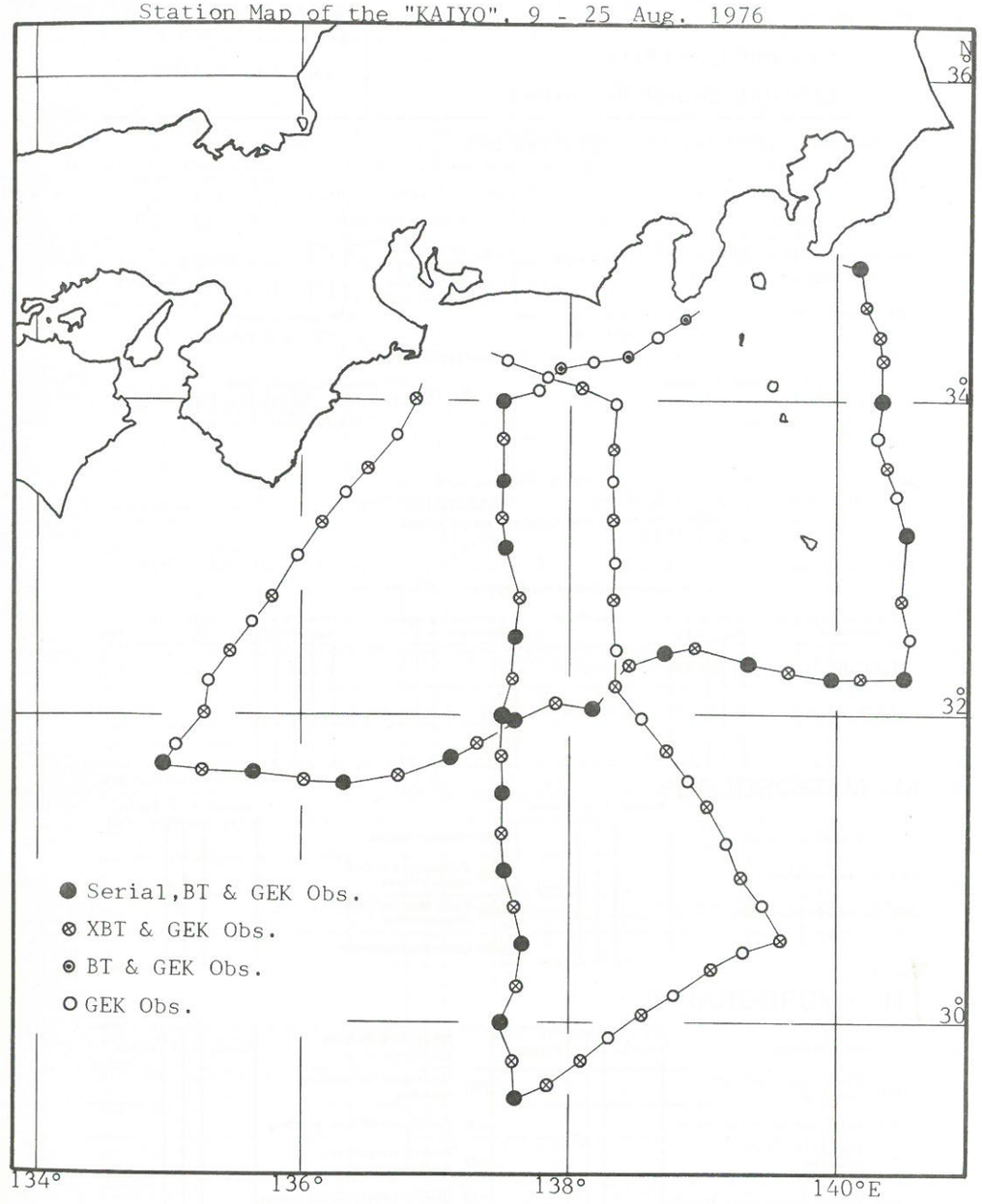
B - BIOLOGY

B02	Phytoplankton pigments	10	a	A	1	B21	Commercial benthic crustacean				
B08	Phytoplankton	10	a	B	1	B27	Deep scattering layers				
B09	Zooplankton	10	a	B	1	B28	Acoustical reflections on marine organisms				
B10	Neuston					B29	Biologic sounds				
B11	Nekton					B30	Bioluminescence				
B12	Invertebrate nekton					B31	Vitamin concentrations				
B13	Pelagic eggs and larvae					B32	Aminoacid concentration				
B14	Pelagic fish					B33	Hydrocarbon concentrations				
B18	Zoobenthos					B37	Taggings				

Remarks Norpac Standard Net

	BS TYPES OF STUDIES					B60	Physiology				
B51	Identification					B61	Behaviour				

Station Map of the "KAIYO", 9 - 25 Aug. 1976



'78

ROSCOP (2nd edition)

OCEANOGRAPHY

GENERAL CRUISE INVENTORY

A00
DATA CENTRE: J.O.D.C.
REFERENCE No : R.76078

A - GENERAL INFORMATION ON WORK PERFORMED

A01 Expedition/Project: C S K
Cruise No. or name:

A91 Declared national prog.? YES ☑ NO ☐ PART ☐
Exchange restricted? ☐ ☑ ☐

A02 Ship or platform: Shoyo (JCOD)
Platform type: 01

A92 Co-operative programme? YES ☑ NO ☐ Name: C S K
Co-ordinated internationally? ☑ ☐ By whom? K. Wadati

A03 Country: Japan
A04 Organization: HD, MSA
A05 Chief scientist(s): Akira Kosugi

A06 NAMES AND ADDRESSES OF ORGANIZATIONS AND PERSONS

Whom to query
a HD, MSA
b
c

Final disposition of data
A HD, MSA; 5-3-1 Tsukiji, Chuo-Ku, Tokyo, 104 Japan
B
C

A07 Date: from: 10 11 76 (DAY MONTH YEAR)
to: 26 11 76

A08 General ocean areas: Philippine Sea
A09 Type(s) of marine zone(s): 04, 06

A10 Geographic area Latitude . . . . N/S Longitude . . . . E/W
If all data were collected at a fixed station, fill in the co-ordinates

Discipline and type of measurements	Index 10 x 10 Oc	L	G	G	Index 1° x 1°	Discipline and type of measurements	Index 10 x 10 Oc	L	G	G	Index 1° x 1°
M,HP,HC,D	1	2	1	3							
M,HP,HC,D	1	3	1	3							

M - METEOROLOGY

	Number	i	I	Format		Number	i	I	Format
M01 Upper air observations					M04 Ice observations				
M02 Incident radiation					M05 Occasional standard measurements	X	a	A	1
M03 Air-sea interface studies					M06 Systematic standard measurements				
					M90 Other measurements				

Remarks

H - HYDROGRAPHY

HS SURFACE	Number	i	I	Format	NEAR SEA FLOOR (≤ 10 m)	Number	i	I	Format
H01 Continuous temperature recording					H05 Continuous temperature recording				
H02 Continuous salinity recording					H06 Continuous salinity recording				
H03 Discrete temperature measurements					H07 Discrete temperature measurements				
H04 Discrete salinity measurements					H08 Discrete salinity measurements				
HP PHYSICAL					HC CHEMICAL				
H09 Classical oceanographic stations	27	a	A	1	H21 Oxygen	27	a	A	1

H - HYDROGRAPHY (Continued)

	Number	i	I	Format		Number	i	I	Format
H10 Vertical profiles (STD/CTD)					H22 Phosphates	27	a	A	1
H11 sub-surface measurements underway					H23 Total - P				
H12 Mechanical bathythermograph (no. of drops)	61	a	A	1, 8	H24 Nitrates				
H13 Bathythermograph-expendable (no. of drops)					H25 Nitrites				
H14 Sound velocity stations					H26 Silicates	27	a	A	1
H15 Acoustic stations					H27 Alkalinity				
H16 Transparency					H28 pH	27	a	A	1
H80 Other measurements					H31 Radioactivity				

Remarks

P - POLLUTION

P01 Suspended solids					P07 Waste water : BOD				
P02 Heavy metals					P08 Waste water : Nitrates				

Remarks

D - DYNAMICS

D01 Current meters (no. of stat.)					D07 Drift cards (no. released)				
D02 Current meters (average duration of measurement)					D08 Bottom drifters (no. released)				
D03 Currents measured from ship drift					D09 Tidal observations (duration)				
D04 GEK	75	a	A	1, 3	D10 Sea and swell (no. of observations)				
D05 Drifters (number)					D90 Other				
D06 Swallow floats (number)									

B - BIOLOGY

B02 Phytoplankton pigments					B21 Commercial benthic crustacean				
B08 Phytoplankton					B27 Deep scattering layers				
B09 Zooplankton					B28 Acoustical reflections on marine organisms				
B10 Neuston					B29 Biologic sounds				
B11 Nekton					B30 Bioluminescence				
B12 Invertebrate nekton					B31 Vitamin concentrations				
B13 Pelagic eggs and larvae					B32 Aminoacid concentration				
B14 Pelagic fish					B33 Hydrocarbon concentrations				
B18 Zoobenthos					B37 Taggings				

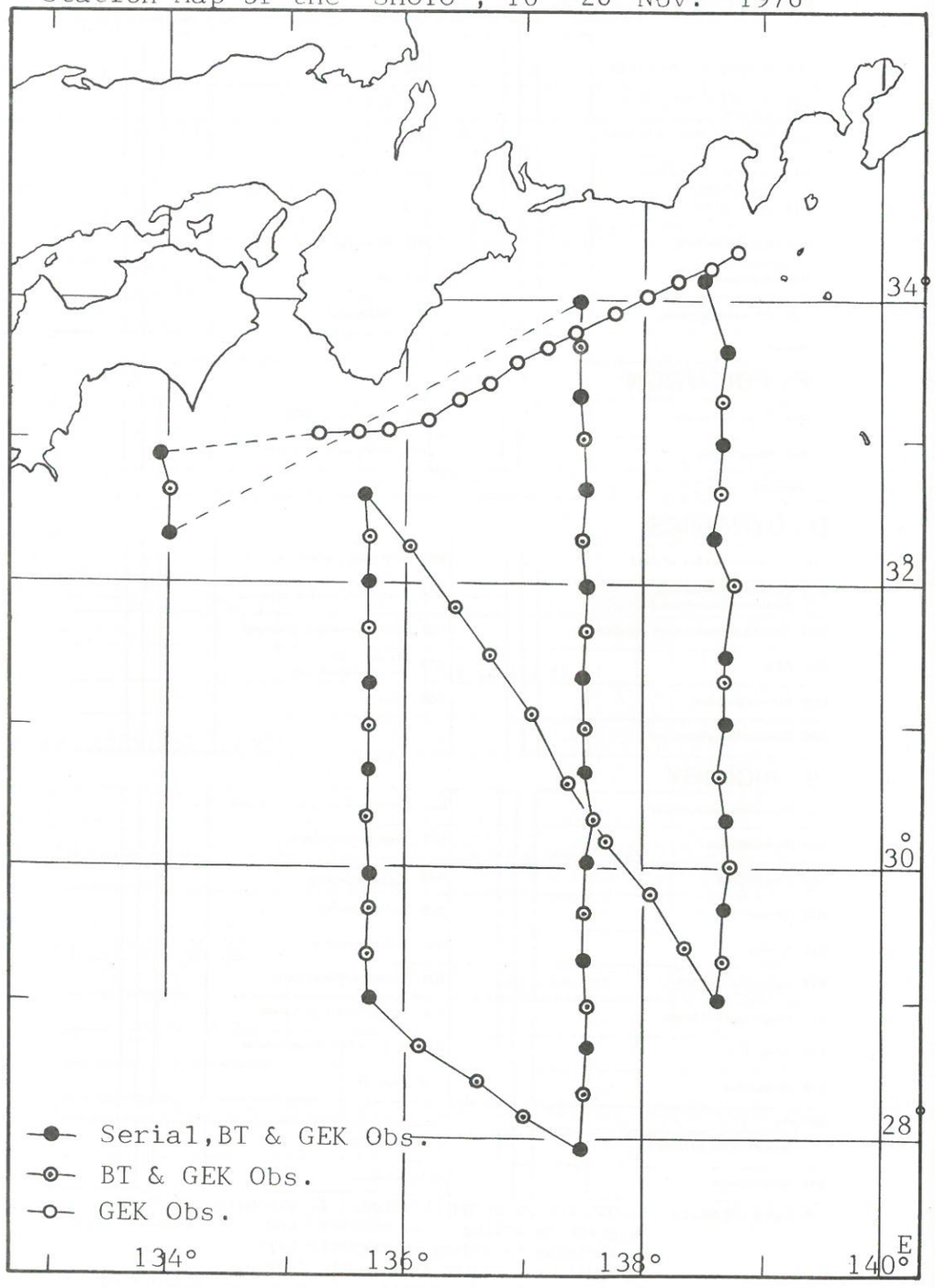
Remarks

BS TYPES OF STUDIES					B60 Physiology				
B51 Identification					B61 Behaviour				

* Data Format: 1. manuscript or publication, 2. automatic printing
3. graph recording 4. punched card 5. punched tape
6. analogue recording on magnetic tape
7. digital recording on magnetic tape
8. photograph 9. samples 0. other or unspecified

'78

Station Map of the "SHOYO", 10 - 26 Nov. 1976



IV. PUBLICATIONS

The following 20 volumes of the "Data Report of CSK" series were published by KDC(JODC) from October 1977 to February 1978.

Book No.	Ship & Area	Period	KDC Ref. No.
381	Shoyo Maru Western Pacific	2 Oct. 1973 - 7 Jan. 1974	49K191
393	Shoyo Maru Western Pacific	2 Oct. 30 Nov. 1974	49K202
395	Ryofu Maru Western Pacific	14 Jan. - 10 Feb. 1975	49K195
396	Kofu Maru East of Japan	4 Feb. - 14 Mar. 1975	49K201
397	Shumpu Maru Seto Naikai, Kii Channel & South of Japan	1 - 27 Feb. 1975	49K203
399	Seifu Maru Japan Sea	3 Feb. - 2 Mar. 1975	49K196
400	Takuyo South of Japan	7 - 24 Mar. 1975	49K197
401	Takuyo South of Japan	5 - 25 May 1975	49K207
403	Suro No. 3 South of Korea	2 - 20 June 1975	24K052
406	Ryofu Maru Western Pacific	10 June - 8 Aug. 1975	49K205
408	Shumpu Maru Seto Naikai, South of Japan	3 July - 4 Aug. 1975	49K211
409	Chofu Maru East China Sea	12 July - 12 Aug. 1975	49K200
410	Seifu Maru Japan Sea	5 July - 12 Aug. 1975	49K204
411	Kaiyo South of Japan	11 Aug. - 3 Sept. 1975	49K208

'78

Book No.	Ship & Area	Period	KDC Ref. No.
413	Takuyo East China Sea & South of Japan	18 Oct. - 16 Nov. 1975	49K217
415	Ryofu Maru Western Pacific & East China Sea	14 Jan. - 17 Feb. 1976	49K209
417	Shumpu Maru Osaka Bay & South of Japan	2 - 27 Feb. 1976	49K215
418	Chofu Maru East China Sea	9 - 21 Feb. 1976	49K210
419	Seifu Maru Japan Sea	3 Feb. - 15 Mar. 1976	49K212
420	Shoyo South of Japan	10 - 24 Mar. 1976	49K218

* * * * * * * * * * * * * * *

V. DATA RECEIVED

Catalogue of Data Received by KDC (JODC), 1 October 1977 - 28 February 1978

Mo.Day/Yr.	KDC Ref. No.	Ship Code*	Agency	Period	Area	No. of Stas.	Serial	BTs	Currents	Bottom Topography	Biological
JAPAN											
10.01/77	49K231	RY	MDJMA	06.04-08.02,1977	Western Pacific	107	T S O P TP N2 N3 NH PH	116	13	D	Phaeo. Chl.a
10.01/77	49K232	CH	NMOJMA	07.12-08.13,1977	East China Sea	63	T S O P TP N2 N3 NH PH COD	129	81	D	Phaeo. Chl.a
10.01/77	49K233	SH	KMOJMA	01.29-02.26,1977	South of Japan	30	T S O P N2 N3 PH COD	83	77	D	Phaeo. Chl.a
10.12/77	49K234	KO	HMOJMA	02.08-03.14,1977	South of Hokkaido & East of Japan	23	T S O P TP N2 N3 NH PH COD			D	Phaeo. Chl.a
02.10/78	49K235	SI	MMOJMA	07.08-08.12,1977	Japan Sea	38	T S O P TP N2 N3 NH PH COD	84	84	D	Phaeo. Chl.a

JAPAN

Ship Code*	
RY	Ryofu Maru
CH	Chofu Maru
SH	Shumpu Maru
KO	Kofu Maru
SI	Seifu Maru