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CSK NEWSLETTER



JAPAN OCEANOGRAPHIC DATA CENTER
Hydrographic Department, Maritime Safety Agency
Tokyo, Japan

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I. PARTICIPATION OF THE USSR IN THE SECONDARY OBSERVATIONS
UNDER THE CSK PROGRAM FOR 1971-1973

The following information of the participation of the secondary observations under the CSK program for 1971-1973 from Prof. A.M. Muromtsev, National Coordinator for CSK was received by Dr. Kiyoo Wadati, International Coordinator for CSK.

Prof. Dr. K. Wadati,
International Coordinator for CSK,
Japanese National Commission for UNESCO
2-2, Kasumigaseki 3-Chome, Chiyoda-Ku
Tokyo, Japan

Dear Prof. K. Wadati,

I send to you the Program of works of the Soviet research vessels for the period of 1971-1973, under which the short observations on the standard sections are made in the Kuroshio region, according to the decision of the 7th Meeting of the International Coordination Group of CSK.

For the normal work of our vessels I ask you convincingly to ensure the possibility of their stopping at ports of Japan (Tokyo, Yokohama) as it was adopted earlier for the vessels working under the International CSK Program.

I inform you simultaneously that as a member of the Consultants Panel for the Regional Marine Biological Centre (Singapore) from the USSR is nominated Dr. Maria Kun (Pacific Scientific Research Institute of Fisheries and Oceanography).

Yours respectfully,

(S i g n e d)

Prof. A.M. Muromtsev,
National Coordinator for CSK

Participation of the USSR
in the secondary observations
under the CSK Program for 1971-1973

According to the decision of the 7th Meeting of the International Coordination Group of the CSK (1-3 October, 1970, Tokyo) the Member-States of the CSK Program make the short volume of works on some secondary standard sections during 1971-1972/1973 for the purposes of preservation of continuity of the observation data, obtained on the first stage (1965-1970) and on the following stage (after 1972-1973), the program of which will be composed after the complete treatment of the materials, collected during the period July 1965 - August 1970.

The Soviet Union will continue the observations on some standard sections, appointed to it under the CSK Program, by the efforts of 1-2 scientific-research vessels of the Hydrometeorological Service (DWNIGMI) and Fisheries (TINRO).

The observations are made on the following sections:

1. Along 145°E between 42° and 20°N - one of the vessels of DWNIGMI
2. Along 149°E between 42° and 33°N - "Orlick" or other vessel of TINRO
3. Along 138°E between Japan coast and 20°N "

Location of stations at the sections:

The stations are made:

- with intervals of 15-20 miles at the sections between 42° and 33°N;
- with intervals of 30 miles at the Kuroshio cross-sections
- with intervals of 60 miles at the sections areas outside of these zones.

Depth of the stations

1. The depth of the suspended stations is 1000-1500m (if it is possible - 2000m)
2. If it is possible, at each section the 3 stations are made till bottom.

Horizons of observations

1. The observations at suspended stations are made on the standard horizons 0, 10, 20, 30 (or 25m instead of 20 and 30m), 50, 75, 100, 125, 150, 175, 200, 250, 300, 500, 600, 700, 800, 1000, 1200 and 1500m.
2. At the stations made till bottom the observations are made additionally on the horizons 2000, 2500, 3000, 3500, 4000, 4500, 5000 and the bottom.

Compositions of observations

1. The meteorological elements - atmospheric pressure, wind, air temperature, cloudness, precipitations (in standard synoptic terms and at the stations).
2. The hydrological observations - water temperature, salinity on the standard horizons.
3. Hydrochemical elements - oxygen, pH, alkalinity, phosphates, silicates, nitrates.
4. Biological observations: sampling of phytoplankton, mesoplankton, macroplankton; observations of some species of fishes.

Frequency of observations

Observations are made at the all sections during all seasons of the year, if it is possible.

Exchange of the data

The data of the meteorological, hydrological and hydrochemical observations reported by the Soviet vessels are transmitted through the WDC-B in the Kuroshio Data Center (Tokyo) for the international exchange.

The data of biological observations in the established form are reported in the Regional Marine Biological Centre (Singapore).

National Coordinator for CSK

(S i g n e d)

A.M. Muromtsev

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II. CRUISE REPORTS

The following cruise reports were received by the Center from each participating agencies of Japan and Republic of Singapore.

1. Japan

1.1 Kaiyo

(1) Operating Agency

Hydrographic Department, Maritime Safety Agency

(2) Personnel

Scientists: T. Bando, H. Heya, Y. Iwanaga, K. Oda, T. Imoto, H. Nakamura, S. Fukushima, M. Mine

Captain: H. Sakamoto

Officers and Crew: 23

(3) Cruise Itinerary

<u>Port</u>	<u>Arrive</u>	<u>Depart</u>
Tokyo		11 May 1971
Tanabe	15 May 1971	17 May 1971
Nagoya	21 May 1971	25 May 1971
Tokyo	31 May 1971	

(4) Region

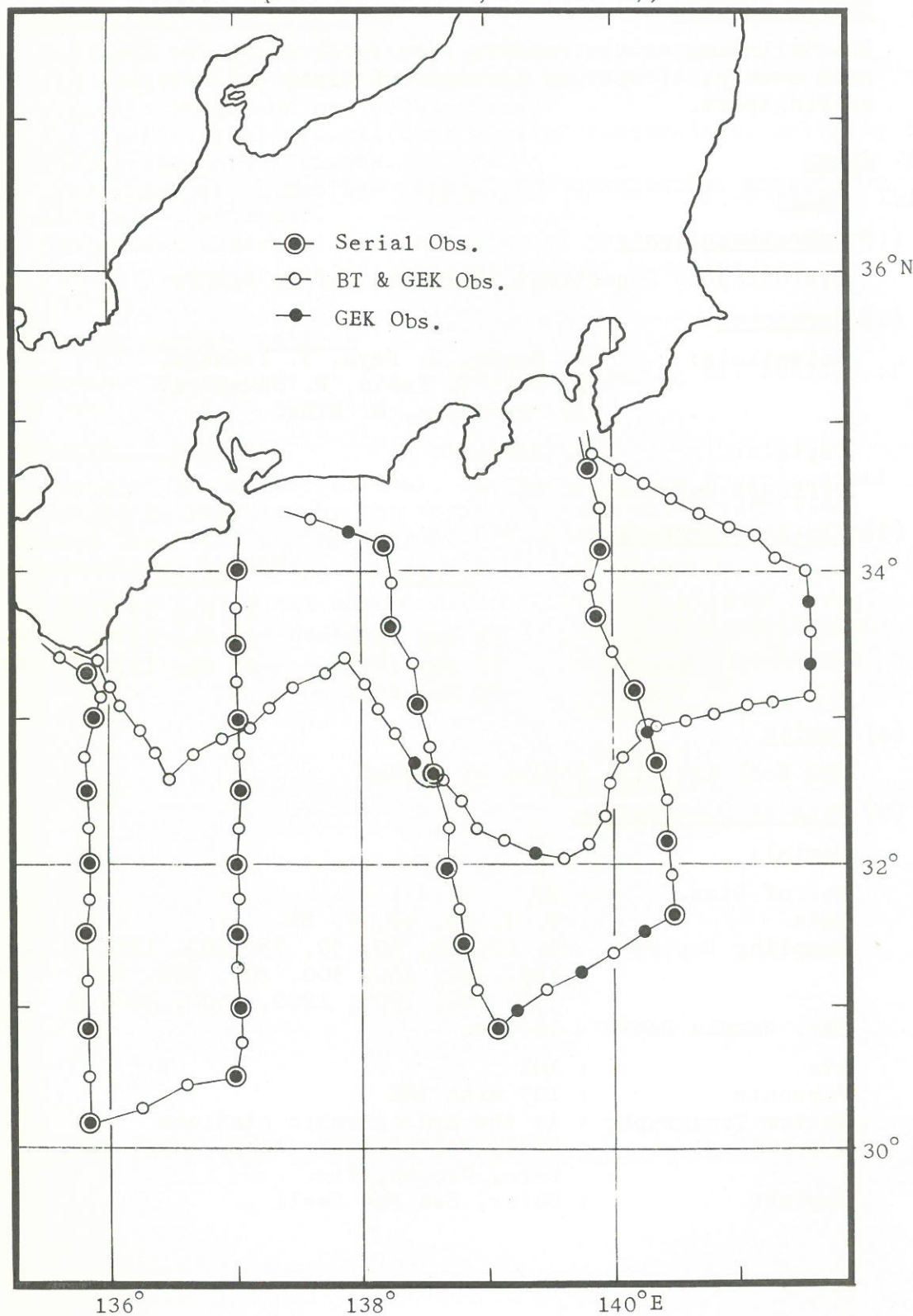
MSQ Nos. 130, 131 (South of Japan)

(5) Type of Observation

Serial:

- No. of Stas. - 29
- Data - T, S, O₂, pH, P, Si
- Sampling Depths - 0, 10, 20, 30, 50, 75, 100, 125, 150, 200, 250, 300, 400, 500, 600, 700, 800, 1000, 1200, 1500, 1800 m
- Max. Sample Depth - 1873 m.
- BTs : 101
- Currents : 109 with GEK
- Bottom Topography : At the hydrographic stations
- Meteorological : Wind, Weather, Air temp.; dry, wet, Bar., Clouds, Vis.
- Surface : Color, Sea and Swell

Station Map of the "KAIYO", 11 - 31 May, 1971



1.2 Kaiyo

(1) Operating Agency

Hydrographic Department, Maritime Safety Agency

(2) Personnel

Scientists: M. Shiozaki, A. Kosugi, K. Iwanami,
Y. Arai, T. Imoto, T. Tozaki,
Y. Kuroda, S. Hukushima

Captain: H. Sakamoto

Officers and Crew: 22

(3) Cruise Itinerary

<u>Port</u>	<u>Arrive</u>	<u>Depart</u>
Tokyo		21 Aug. 1971
Owase	24 Aug. 1971	25 Aug. 1971
Toba	25 Aug. 1971	26 Aug. 1971
Yokohama	28 Aug. 1971	2 Sept. 1971
Yokohama	7 Sept. 1971	10 Sept. 1971
Tateyama	10 Sept. 1971	11 Sept. 1971
Hachijo	15 Sept. 1971	18 Sept. 1971
Yokohama	19 Sept. 1971	21 Sept. 1971
Tokyo	21 Sept. 1971	

(4) Region

MSQ Nos. 130, 131 (South of Japan)

(5) Type of Observation

Serial:

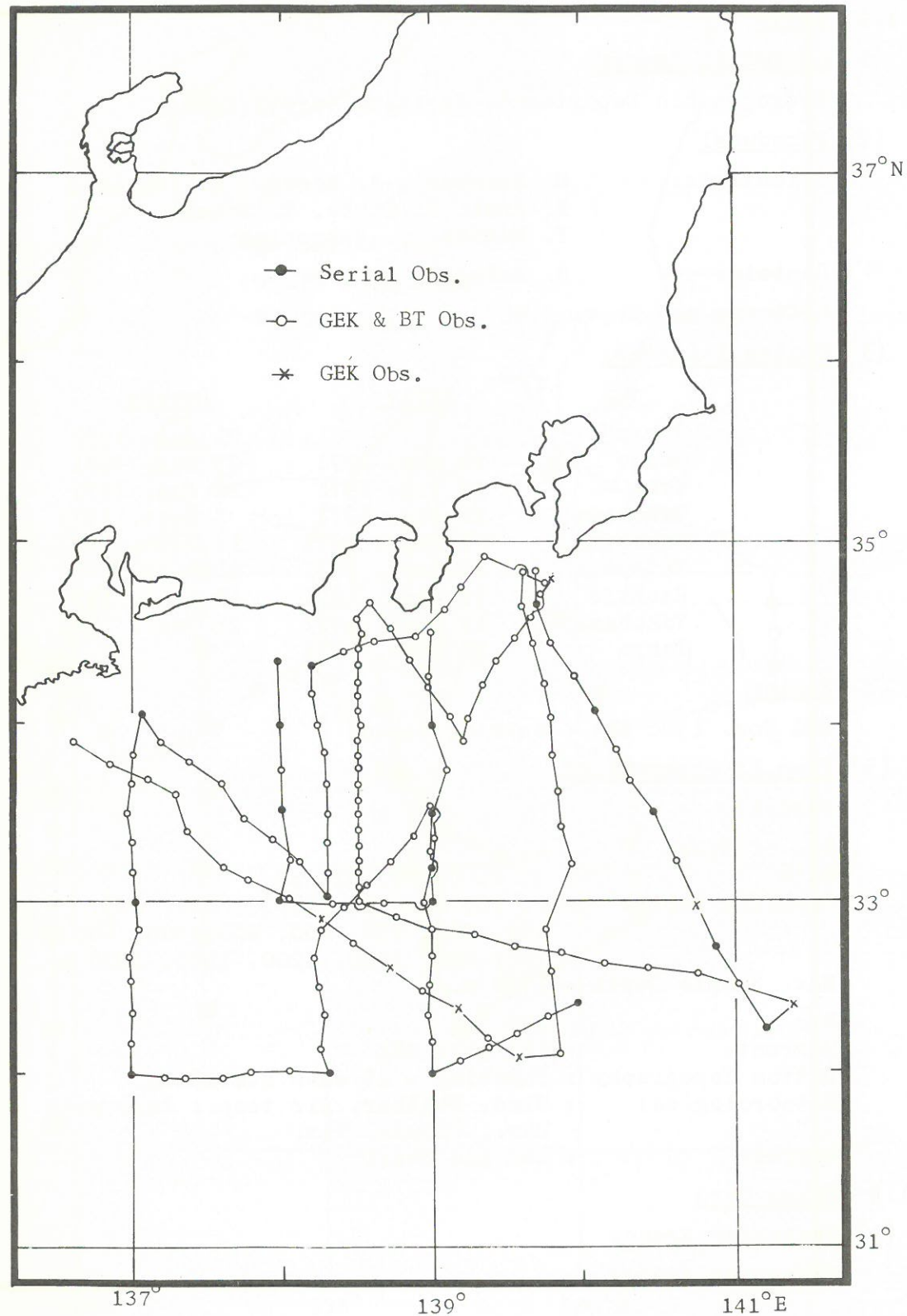
No. of Stas. - 21
 Data - T, S, O₂, P, Si, pH
 Sampling Depths - 0, 10, 20, 30, 50, 75, 100, 125,
 150, 200, 250, 300, 400, 500, 600,
 700, 800, 1000, 1200, 1500, 1800 m.
 Max. Sample Depth - 1778 m.
 BTs : 156
 Currents : 164 with GEK
 Bottom Topography : Sounding - at each station
 Meteorological : Wind, Weather, Air temp.; dry, wet,
 Bar., Clouds, Vis.
 Surface : Sea and Swell

1.3 Kaiyo Maru

(1) Operating Agency

Fisheries Agency

Station Map of the "KAIYO", 21 August - 21 September, 1971



(2) Personnel

Scientists: K. Saishu (S.R.F.R.L.), T. Ogata (N.R.F.R.L.),
 K. Nasu (F.S.F.R.L.), Y. Sasagawa (T.R.F.R.L.)
 K. Kakuta (T.R.F.R.L.), J. Morita (F.S.F.R.L.),
 T. Inada (Kyoto Univ. Graduate Student),
 Y. Sato (Tokai Univ. Graduate Student),
 S. Hamaoka (Hokkaido Univ. Graduate Student),
 Y. Saito (Hokkaido Univ. Graduate Student),
 Y. Sato (Nihonsuisan c/o)

Captain: T. Jinno

Officers and Crew: 51

(3) Cruise Itinerary

Port	Arrive	Depart
Tokyo		12 Oct. 1970
Bangkok	23 Oct. 1970	28 Oct. 1970
Singapore	3 Nov. 1970	

(4) Region

MSQ Nos. 025, 026, 061, 062 (South China Sea & Gulf of Thailand)

(5) Type of Observation

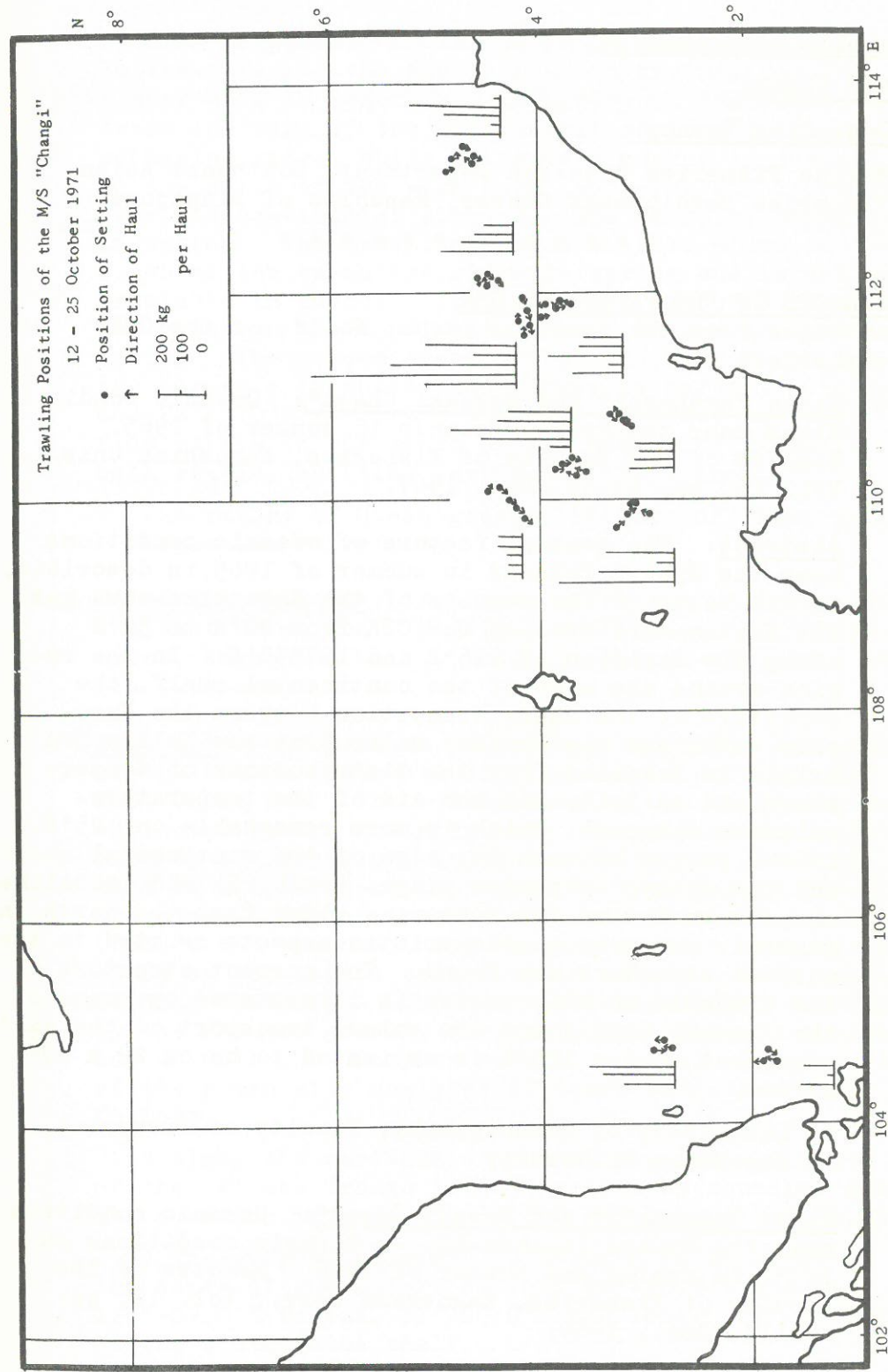
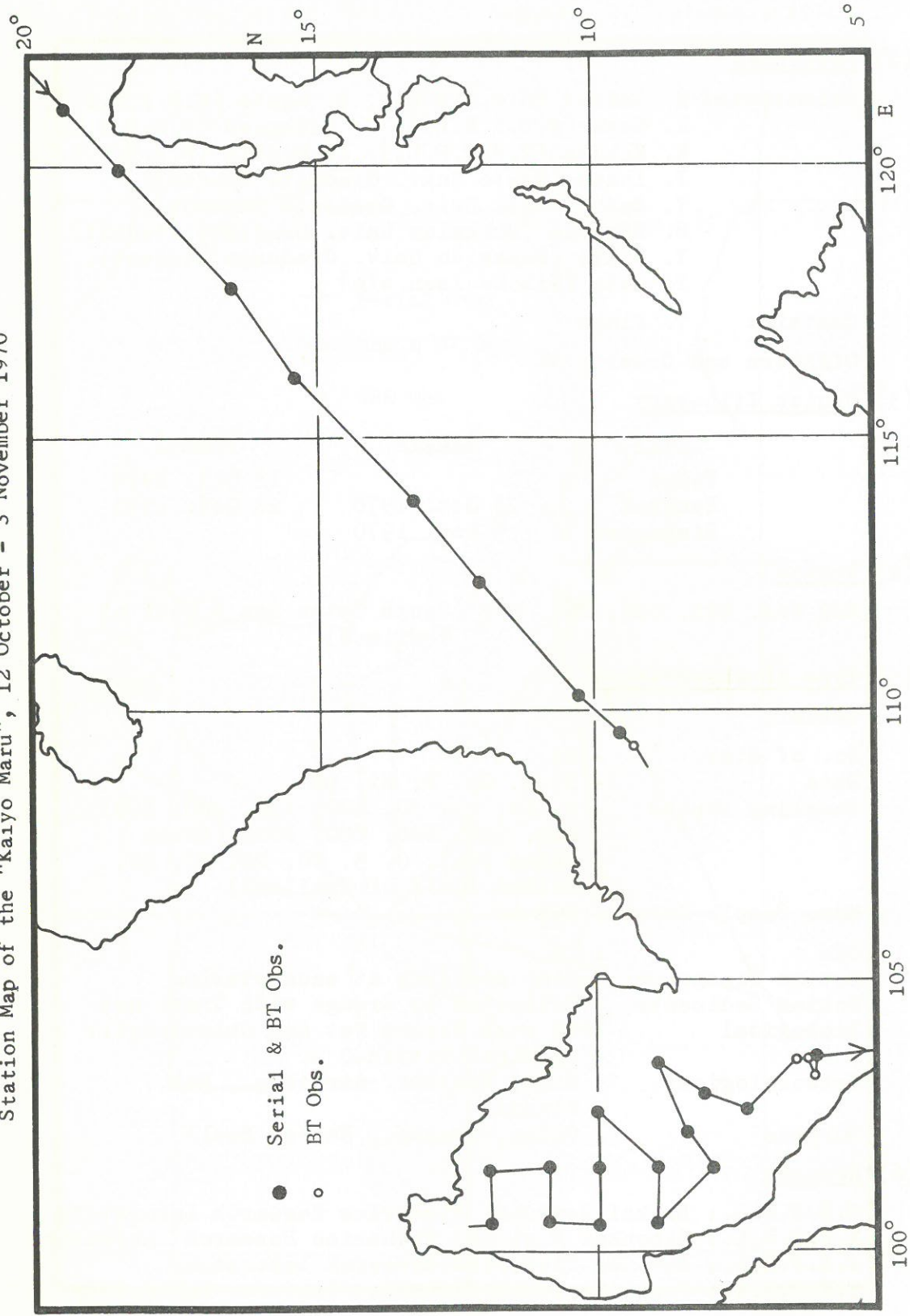
Serial:

- No. of Stas. - 24
- Data - T, S, O₂, P, Si, pH
- Sampling Depths - 0, 10, 20, 50, 100, 150, 200, 300, 400, 500, 600, 800, 1000 (South China Sea), 0, 5, 10, 20, 30, 50, Bottom (Gulf of Thailand)
- Max. Sample Depth - 999 m.
- BTs : 26
- Bottom Topography : Echo sounding at each station
- Bottom Sediments : Collected by dredge with Trawl net
- Biological : 15 with Norpac Net and Chlorophyll; vertical bottom-0 m.
- Meteorological : Wind, Weather, Air temp., Bar., Clouds
- Surface : Color, Transp., Waves, Swell

(6) Remarks

S.R.F.R.L.: Saikai Regional Fisheries Research Laboratory
 N.R.F.R.L.: Nihonkai Regional Fisheries Research Laboratory
 F.S.F.R.L.: Far Sea Fisheries Research Laboratory
 T.R.F.R.L.: Tokai Regional Fisheries Research Laboratory

Station Map of the "Kaiyo Maru", 12 October - 3 November 1970



2. Republic of Singapore

2.1. M/S Changi

(1) Operating Agency

Marine Fisheries Research Department, Southeast Asian Fisheries Development Center, Republic of Singapore.

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III. ABSTRACTS OF THE PAPERS ON CSK

(Continued from the previous issue, No.34, of the CSK Newsletter)

- (66) Tadao Takahashi* and Masaaki Chaen*: Oceanic conditions near the Ryukyu Islands in summer of 1965. Memoirs of the Faculty of Fisheries, Kagoshima Univ., Vol. 16, pp. 63-75, Dec. 1967.

Abstract: The general feature of oceanic conditions near the Ryukyu Islands in summer of 1965 is described, on the bases of the results of the Kagoshima-maru and the Keiten-maru cruises for CSK from 20°N to 32°N along the meridian of 125°E and 127°30'E. In the region around the edge of the continental shelf, the structure of the sharp transition between the Kuroshio water and the surface water from the Yellow Sea origin is revealed from the distributions of temperature and salinity and the aid of the temperature-salinity diagrams, which is more remarkable on 125°E. In the region between the edge of the continental shelf and the Ryukyu submarine ridge, isotherms and isohalines slope down toward the submarine ridge from the north in general, and some characteristic aspects related to the current structure are found. The current structure of the Kuroshio in this region is illustrated by means of the dynamic method and the volume transport of the east component across 125°E is estimated to be ca 29×10^6 m³/sec.

* Laboratory of Oceanography, Faculty of Fisheries, Kagoshima University

- (67) Tadao Takahashi* and Masaki Chaen*: Oceanic condition near the Ryukyu Islands-II. -- Oceanic conditions on 125°E in spring and summer of 1966. Memoirs of the Faculty of Fisheries, Kagoshima Univ., Vol. 18, pp. 99-114, Dec., 1969.

Abstract: The general feature of oceanic conditions along the meridian of 125°E in spring and summer of

1966 is described, on the bases of the results of the Keiten-maru and the Kagoshima-maru cruises for CSK. A warm core is remarkable in spring in the region between the edge of the continental shelf and the Ryukyu submarine ridge, while it is less marked in summer. On the north of the warm core isotherms and isohalines over the continental slope decline sharply, especially in spring. The upwelling seems to take place on the south of the submarine ridge in spring and is not appreciable in summer. Saline water creeps further to the north on the continental shelf in summer than in spring. The volume transport of the east component of the Kuroshio in spring and summer is ca 31×10^6 m³/sec and 28×10^6 m³/sec respectively. Another eastward flow exists to the south of the submarine ridge in both season, shifting very much with season.

* Laboratory of Oceanography, Faculty of Fisheries, Kagoshima University

- (68) Seiji Higashikawa*: Analyses of bottom sediments of the East China Sea. Memoirs of the Faculty of Fisheries, Kagoshima Univ., Vol. 19, pp. 91-102, Dec. 1970. (in Japanese)

Abstract: The present paper reports on the analyses of the bottom sediments distributed in part of the East China Sea. The bottom samples, 26 in total, were collected by the training ship "Kagoshima-maru" of the Faculty of Fisheries, Kagoshima University, and of them 14 samples were employed for the project "Co-operative Study of the Kuroshio and Adjacent Regions (CSK)", and the remaining 12 samples were used for a study of the bottom sediments in relation with trawl fishing training. The materials were taken chiefly by the Phleger gravity core sampler. Niino's dredge and a small core sampler were also used. The results of the grain size analyses of these samples are as follows.

1) Along the meridian of 125°E, the maximum depth of the Okinawa Trough is 2437 meters by sounding and its position is lat. 25°-39.0'N and long. 125°-02.9'E.

2) The average gradient of 0°-01'N is measured at the depth of 200 meters at lat. 26°-36.0'N and long. 125°-02.0'E to lat. 31°-00.0'N and long. 125°-00.0'E on the continental shelf.

3) Very fine grained sand is distributed on the continental slope at a depth of 240 meters. (station 39,

lat. 26°-32.0'N and long. 125°-06.0'E)

4) Fine grained sand is distributed on the continental shelf in the area southward of lat. 30°-00.0'N.

5) Muddy sediment is distributed in the area circumscribed by stations 27 (lat. 31°-18.3'N and long. 126°-51.4'E), 53 (lat. 30°-29.7'N and long. 125°-59.4'E), and 51 (lat. 31°-00.8'N and long. 125°-02.2'E)

Muddy sediment is predominantly distributed at station 37 (lat. 25°-00.0'N and long. 125°-00.2'E) and station 38 (lat. 25°-08.3'N and long. 125°-02.2'E), both at the south end of the Okinawa Trough.

* "Kagoshima Maru", Training ship belonging to the Faculty of Fisheries, Kagoshima University

- (69) Jotaro Masuzawa*: Subtropical Mode Water** Deep-Sea Research, Vol. 16, pp. 463-472. Pergamon Press. Printed in Great Britain.

Abstract: Nearly isothermal water between the upper thermocline and the main thermocline in the subtropical North Pacific Ocean makes a temperature-salinity mode in the volume distribution. The water is the same as the so-called 18°C Water in the North Atlantic. The name Subtropical Mode Water is proposed for this water type. Characteristics of the Mode Water are uniform over an extensive area of the North Pacific. The Water is carried not only westward by the North Equatorial Current and eastward by the Kuroshio but also westward undercurrent which is often covered by the eastward Subtropical Countercurrent in the interior region of the North Pacific.

* Marine Division, Japan Meteorological Agency, Tokyo, Japan

** Contribution No. 134 of Chesapeake Bay Institute, Johns Hopkins University.
This work was supported by a research grant (GP-2443) from the National Science Foundation to the Johns Hopkins University

- (70) Jotaro Masuzawa*: The Mindanao Current. Bulletin of the Japanese Society of Fisheries Oceanography, Special No. (Prof. Uda's Commemorative Papers), 1969. (in Japanese)

Abstract: Observations made by the Ryofu Maru in January to March 1968 east of the Philippine Islands show some characteristics of waters in the vicinity

of the Mindanao Current. The maximum current velocity measured relative to 600 m is as high as 158 cm/s. The geostrophic flux relative to 600 m amounts to 104 km³/hr. Part of the Mindanao Current flows southward into the Molucca Strait and flows out north of Halma-hera into the Pacific Ocean. The Mindanao Current carries not only the North Tropical Water but also the North Intermediate Water from the North Equatorial Current into the Equatorial Countercurrent. Thus, the active lateral mixing forms various types of vertical maxima and minima in salinity, temperature inversion and thermostat.

* Japan Meteorological Agency, Tokyo, 100 Japan

- (71) Jotaro Masuzawa*: Geostrophic flux of the North Equatorial Current South of Japan. Journal of the Oceanographical Society of Japan, Vol. 26, No. 1, pp. 61-64, February, 1970. (in Japanese)

Abstract: not available

* Marine Division, Japan Meteorological Agency

- (72) Shunji Konaga*: On the short period fluctuation of the Kuroshio. Bulletin of the Kobe Marine Observatory, No. 183, pp. 83-95, February, 1970. (in Japanese)

Summary: Multiple ship survey of the Kuroshio Current off Kii Peninsula was carried out in October to November, 1967 by five vessels of Japan Meteorological Agency; Ryofu Maru (Marine Division), Kofu Maru (Hakodate Marine Observatory), Shumpu Maru (Kobe Marine Observatory), Chofu Maru (Nagasaki Marine Observatory) and Seifu Maru (Maizuru Marine Observatory).

Predominant periods of the fluctuation are diurnal (inertial and tidal oscillation), four and eight days (periods of the meteorological disturbance). The current is strong every four days and shifts northwards every eight days.

The difference in mean sea level between Kushimoto and Uragami varies in good agreement with the fluctuation of the Kuroshio.

The fluctuation indicates that some internal waves propagate eastward with about one knot.

* Kobe Marine Observatory, Japan Meteorological Agency

- (73) Tunyow Huang*: Foraminiferal trends in the surface sediments of Taiwan Strait. Committee for Co-ordination of Joint Prospecting for Mineral Resources in Asia Offshore Areas (C.C.O.P.), Technical Bulletin Vol. 4, pp. 23-61, figs. II-1 to II-35, tables II-1, 2, June, 1971.

Abstract: This is a study of the distribution of foraminifers in Taiwan Strait. The floor of the strait, which forms part of the continental shelf of eastern Asia, is about 500 km long and 150 km wide, with water depths ranging down to 150 m. The trends of the foraminiferal assemblages in the sediments are described and the biofacies and faunal distributions are analysed. There are two categories of faunal gradations. One is related to the distribution of the ocean water masses comprising the cold current along the mainland coast, the Kuroshio current, and the deep water masses; the other category is related to the submarine topography of the area studied. The foraminifers generally become more abundant towards the topographically lower areas of the shelf. Reworked specimens are commonly found in the surface sediments. The general biofacies includes abundant miliolids in the shallow portions of the strait, an arenaceous in the topographically low portions of the strait, and hyaline calcareous forms are common in all parts of the strait. In terms of assemblages the foraminifers can be grouped into six facies and nine sub-facies; the six facies are: (1) the near-shore facies (less than 40 m), characterized by predominant Pararotalia ozawai and P. taiwanica in the assemblages, with reworked worn specimens common; (2) the offshore facies along the west side of the near-shore facies (40-100 m), characterized by mixed occurrences of the near-shore and basin facies with Textularia conica abundant in the assemblages; (3) the basin facies (60-100 m) in the central portion of the strait and along the west side of the offshore facies, characterized by the dominant occurrence of Bolivina robusta pacifica; (4) the bank facies in the areas of the Taiwan Bank (20-150 m), characterized by the dominance of Cibicides pseudoungerianus and Cibicides sintikuensis together with Pararotalia and miliolids; (5) the Chilung Channel facies (50-150 m) near the Chilung Channel, characterized by the Cibicides pseudoungerianus-Asterorotalia inflata assemblage; and (6) the Penghu Channel facies (100-200 m) in the

Penghu Channel, characterized by an association of rather deep water forms, including Bolivina, Bulimina, Casidulina, Gyroldina, Hanzawaia, Siphogeneria, and Uvigerina. The percentage of planktonic foraminifers is high in the Penghu Channel and the Chilung Channel and they are probably brought into these areas by the branch of the Kuroshio current.

* Chinese Petroleum Corporation, Miaoli, Taiwan, China; and National Taiwan University, Taipei, Taiwan, China

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IV. PUBLICATIONS

The following 9 volumes of the "Data Report of CSK" series were published by KDC (JODC) from August to November 1971.

No.	Ship & Area	Period	KDC Ref. No.
241	A. Korolev W. of North Pacific, South China Sea & Indian Ocean	Jan. - Apr. 1969	90K027
254	Iskatel N.W. of North Pacific	Jul. - Sept. 1969	90K028
274	Kofu Maru E. of Japan	Feb. - Mar. 1970	49K121
280	Tae Baek San W. of Japan Sea	August 1970	24K039
281	Chun Ma San East China Sea	August 1970	24K040
282	Han Ra San E. of Yellow Sea	August 1970	24K041
283	Cape St. Mary South China Sea	August 1970	74K016
289	Takuyo S. of Japan	Nov. - Dec. 1970	49K130
290	Suro No. 3 S. of Korea	Nov. - Dec. 1970	24K042

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V. DATA RECEIVED

Catalogue of Data Received by KDC (JODC), 1 August - 30 November 1971

Date Received Mo. Day/Yr.	KDC Ref. No.	Ship Code*	Agency	Period	Area	No. of Stas.	Serial Data	BTs	Currents	Bottom Topography	Sediments	Biological
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<u>JAPAN</u>												
08.23/71	49K136	KA	HDMSA	05.11-05.31,1971	S. JAPAN	29	T S O P	101	109	SI PH		
11.12/71	49K137	IY	FSFRL	10.12-11.03,1970	S. CHIN. SEA	24	T S O P	28		SI PH		D

<u>USSR</u>												
09.29/71	90K033	UC	TINRO	10.15-12.24,1970	N.W. NORPAC	62	T S O P			SI PH		D

<u>JAPAN</u>												
	*	KA	KAIYO		UC							
<u>USSR</u>												
	IY		KAIYO MARU		UCHEFNY							