**PICES Scientific Report No. 13**
**2000**

# BIBLIOGRAPHY OF THE OCEANOGRAPHY OF THE JAPAN/EAST SEA

Compiled by

Mikhail A. Danchenkov, David G. Aubrey, Gi Hoon Hong

May 2000
**Secretariat / Publisher**
**North Pacific Marine Science Organization (PICES)**
*c/o Institute of Ocean Sciences, P.O. Box 6000, Sidney, B.C., Canada. V8L 4B2*
*pices@ios.bc.ca http://pices.ios.bc.ca*

# Table of Contents

# FOREWORD

The general oceanographic literature concerning the Japan/East Sea is usually characterized by an absence of references to early historical research, particularly by Russian scientists. Ignoring earlier published papers may result in a shallower level of research and recurring papers on work that has already been done. The reason for incomplete knowledge of foreign papers and their collection in libraries is due to the absence of information about them. Thematic bibliographies help researchers to find recent and historical works, published abroad or from within the country of origin. This bibliography contains 1224 references on various aspects of oceanography of the Japan/East Sea published between 1832 and 1997. The authors are grateful to Dr. Skip McKinnell of the PICES Secretariat for his frequent assistance and suggestions for improving the bibliography.

David G. AUBREY
Woods Hole Group, Inc.,
81 Technology Park Drive, East Falmouth, MA 02536, USA
E-mail: daubrey@ghhong.whgrp.com

Mikhail A. DANCHENKOV
Far Eastern Regional Hydrometeorological Research Institute(FERHRI),
Fontannaya 24, Vladivostok 690000, RUSSIA
E-mail: hydromet@online.ru

Gi-Hoon HONG
Korea Ocean Research & Development Institute
Ansan P.O.Box 29, Seoul 425-600, Korea
E-mail: ghhong@sari.kordi.re.kr

# INTRODUCTION

The Japan/East Sea (Fig. 1) has been called "a world ocean in miniature" (Ichiye, 1984) as it contains the main features and elements of a world ocean: warm and cold currents, warm and cold eddies, alienation of the western boundary current, different water masses, planetary hydrological and local fronts. Knowledge of the waters of the Japan/East Sea (hereinafter JES) can be useful for understanding processes in the world ocean in general.

The JES connects four Asian countries: Russia, Japan, North Korea and South Korea. A fifth country, China, is separated from the sea only by narrow (50 km) crosspiece. All these countries play major roles in the global community. The population of the coastal provinces of these countries is rather insignificant ( ~ 15 million in aggregate). Changes in the state of the sea by warming, cooling, pollution by petroleum or radioactive wastes influence the whole population of these countries. Study of the JES is as important for the global community as for the countries located on its coast.

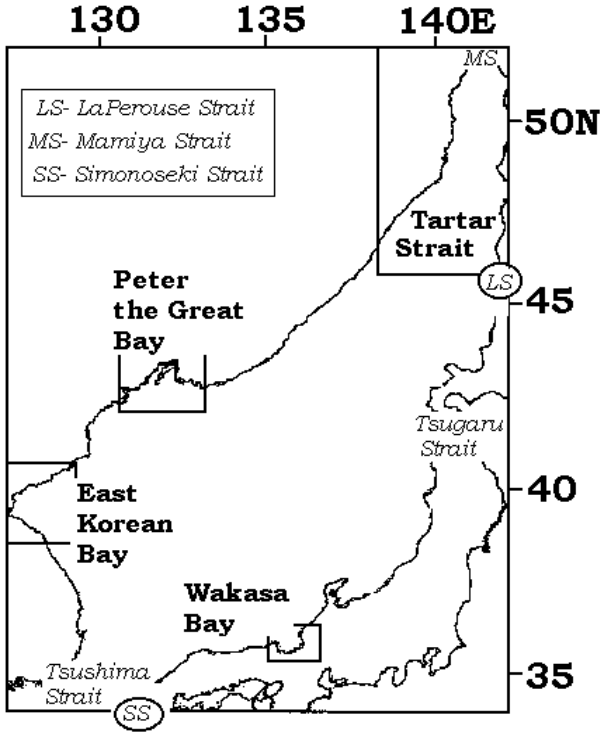



Fig. 1. Borders, straits and main bays of the Japan/East Sea

For a long time, the JES was the backyard of Chinese, Russian, and Japanese empires. Industrial development of the maritime provinces of these countries has been rather limited in comparison with that observed in other areas. Even now, the coastal populations are largely engaged in agriculture and fisheries but the prospect of developing this region during next century is very favorable. However, following the collapse of the Russian economy and the financial crisis in the world, transportation through the ports of the JES is insignificant.

Within Russia there are passenger and cargo routes to Magadan and Kamchatka areas, but regular passenger traffic among Russian ports is limited. Some routes connect Russia with foreign ports. Japan and South Korea have seaports with rather low commodity circulation (except Pusan). But Japan and Korea carry out regular passenger traffic among their own ports in the JES, and also between themselves via the Tsushima Strait. Through the JES, the routes of airlines connecting the airports of the different countries run too. The JES was an important area for naval/military activity during various wars (Russian-Japanese, WW II, Korean) and remains so should new conflicts arise. Large naval bases of the coastal states are located on the shores of the JES. The JES has become polluted by household, industrial, military and radioactive wastes.

### Geographical characteristics of the Japan/East Sea

The JES is bounded on the west by the Asian continent, on the east by the islands of Honshu, Hokkaido and Sakhalin, with major straits Tsushima/Korean to the south and Mamiya/ Nevelskogo to the north (Fig. 1). Let us note that in Russia, the northern border of the JES is not defined by the narrowest part of the Mamiya

Strait, but is considered to be further south at the northern part of the Tartar Strait. The estuary (liman) of the Amur River is considered to be part of the Okhotsk Sea by Russian scientists. Numerous islands are distributed among the bordering countries: Russian: Moneron (Kaiba, Todoshima), Askold, Russkiy, Putyatin, Popova; Korean: Ulleungdo and Tokdo; and Japanese: Rebun, Resiri, Okusiri, Osima, Sado, Okiosima. Some big bays are designated as: Tartar Strait, East Korean Bay, Peter the Great Bay, Isikari Bay, Toyama Bay, and Wakasa Bay. The coastal geography surrounding the JES is mainly mountainous. The basic characteristics of the JES are given (mean and maximum depth, surface area and volume) appear in Table 1.

Differences exist among authors in determining the maximum depth because some authors used out-of-date information. Depths exceeding 4000 m were recorded in several places in the 1930s by Japanese and Russian researchers. During three special expeditions of the *R/V Vityaz*, between 1950-1955, no depths >3669 m were found. The contradictions in views of authors on the surface area of the JES can be explained by differences in determining the borders of the JES. Sometimes the Tsushima/Korean Strait is included and sometimes not. The JES is connected with the Okhotsk Sea (via Nevelskogo Strait and Soya Strait), with the East China Sea (via Tsushima/Korean Strait) and with the Pacific Ocean via the Tsugaru Strait. The Shimonoseki Strait is situated between the inner JES and the Tsushima Strait. The width and sill depth of the straits of the JES are presented in the Table 2.

Table 1. Mean and maximum depth, area and volume of the Japan/East Sea by various authors.

| Author (year) | Hmean (m) | Hmax (m) | Area ($10^6$km$^2$) | Volume ($10^6$km$^3$) |
|---|---|---|---|---|
| Leonov (1948) | 1640 | 4018 | 0.983 | 1.612 |
| Basic features…(1961) | | 3670 | | |
| Hidaka (1966) | 1361 | 4224 | 1.01 | |
| Yasui (1967) | | | | 1.72 |
| Larina (1968) | 1600 | 3669 | 1.063 | 1.70 |
| Frolov (1971) | 1535 | | 1.06 | 1.63 |
| Shuto (1982) | 1350 | | 1.01 | 1.36 |
| Gamo & Horibe (1983) | 1350 | 3700 | | |
| Harada & Tsunogai (1986) | 1350 | 3610 | 1.01 | |

Table 2. Characteristics of the main straits.

| Strait | Source | Width (km) | Mean depth (m) |
|---|---|---|---|
| Nevelskogo/Mamiya | Leonov,1960 | 7- 8 | < 14 |
| La Perouse/Soya | Leonov,1960 | 44 | < 30 |
| Tsugaru | Leonov,1960 | 19 | 130 |
| Shimonoseki | Likht,1983 | 2 | 11 |
| | Leonov, 1960 | 2 | 3 |
| Tsushima/Korean | Leonov,1960 | 160 | 125 |
| Western channel(Brouton,Korean) | Shuto, 1982 | 68 | 95 |
| Eastern channel(Kruzenshtern,Tsushima) | Shuto, 1982 | 99 | 50 |

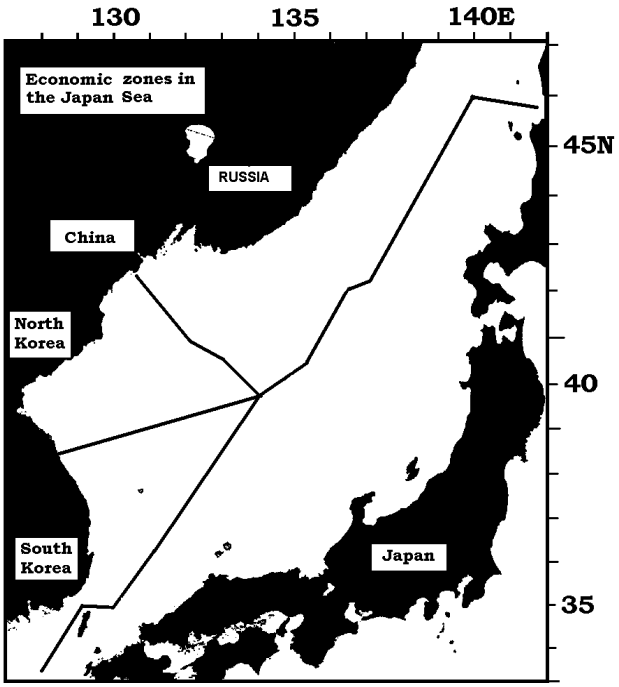



Fig. 2. Economic zones of Russia, Japan, South and North Korea.

It is clear that in such conditions, knowledge of the publications on oceanography of the JES becomes very important. The JES is completely divided into national economic zones (Fig. 2) and as a consequence, oceanographic research has often been restricted to within national zones. For example, oceanographical investigations in economical zones of Russia and KPDR were impossible for Japanese and Korean scientists in the past. Progress in improving the situation is slow.

## Bottom relief

Various bottom features including shelves, deep basins, troughs, ridges and bottom rises can be identified (Fig. 3). The width of the shelf is greatest in the Tartar Strait and in the southern part of the JES. Along Primorye and North Korea, the shelf's edge is about 135 m deep and 12-27 miles wide. In Peter the Great Bay, the shelf width is 60 miles and in the East Korean Bay and around some isles, about 30 miles. In other places the width is generally less.

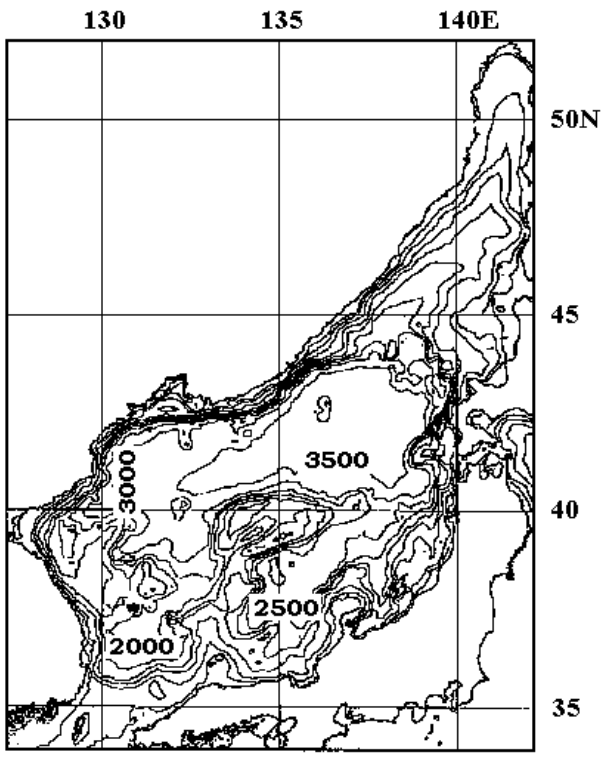



Fig. 3. Bottom relief of the Japan/East Sea (meters).

The area of the largest basin (Japan Basin) is about 210 000 km$^2$. Yamato Basin is separated from Japan Basin by 2470 m sill and from the Tsushima Basin by a 1400 m sill. The Tsushima Basin is separated from the Japan Basin by a 3000 m sill.

## Meteorology of the Japan/East Sea

The meteorology over the JES has a monsoon-like character. In winter, north and west winds prevail and in summer, south and southeasterly winds prevail. The mean velocity in winter is 5-10 m/s. From autumn to spring, especially in autumn, 11-12-ball storms during some days. The Russian ball scale for storm intensity ranges from 1-12. During winter (November - February) there are typically 11 to 16 storms with wind strengths >15 m/s every month. Storms with winds >30 m/s occur about 3 times per month (Hydromet. charts, 1986). There are no detailed investigations of winds along the Primorye coast despite long timeseries

measurements at weather stations. Investigations of wind fields along Japanese and Korean coasts were made often enough. Air temperature in the region ranges from -30°C to +30°C.

In the JES basin there are no large rivers. Only in the northern part of the Tartar Strait is the influence of several large rivers appreciable. The influence of the Amur River is insignificant. Annual rivers' discharge reaches 212 $km^3$ and the volume of precipitation is 1390 $km^3$ (Leonov, 1960).

Ice appears in November in bays along the coast and in the Tartar Strait and disappears in June (Bulgakov, 1968). The maximum ice spreading velocity (≈29 miles/day) occurs in February. In a normal year, ice covers about 10% of the JES (Bulgakov, 1968 ). Because of offshore winds, ice flows into the JES everywhere along Primorye coast, but especially in polynyas. Polynyas are noted in the Tartar Strait and in Peter the Great Bay. The quantity of broken and shifting ice is not appreciated yet. The width of the ice belt along the Primorye coast is 15-40 miles (Hydromet. charts, 1989). There are no investigations of evaporation and precipitation in the JES connected with deepwater formation in winter.

**The problem of common geographic names**

As several languages are used by the peoples surrounding the JES, there is a surplus of names for the geographic features of the JES and for the JES itself (Table 3; PICES Scientific Report No. 8). This is further complicated when translated into English. In most publications in Korean, Russian and Japanese the name "Japan Sea" is used. In the Japanese language this name sounds the same as "Sea of Japan" (used mainly by oceanographers from the U.S.A.), but from our point of view, the meaning of both names is different. Japanese oceanographers used name "South Sea of Japan" for that part of the Philippine Sea that belonged to Japan. As a result, the name "Sea of Japan" can be interpreted to be that part of the JES belonging to Japan. A similar meaning is implied by "East Sea of Korea."

Table 3. Different names of one sea.

| Name | Country | Source |
|---|---|---|
| Japan Sea | Russia | Shrenk, 1869 |
| Sea of Japan | Japan | Kaneko, Yuan, Gohda & Nakano, 1994 |
| Japan/East Sea | USA | Riser, 1997 |
| East Sea (Sea of Japan) | USA | Kantha, 1997 |
| East/Japan Sea | USA | Mooers & Kang, 1997 |
| East Sea (Japan Sea) | Korea | An, Shim & Shin, 1994 |
| East Sea | Korea | Jung, Kim &Ivanov, 1993 |
| East Sea of Korea | Korea | Hong, Cho & Yang, 1984 |
| Korean East Sea | Korea | Ro, 1989 |
| Eastern Sea | Korea | Kim & Choi, 1986 |
| Eastern Sea of Korea | Korea | Lee & Bong, 1968 |
| Orient Sea | Korea | Hahn 1994 |
| Sea between Korea and Japan | Korea | Proc. Korean-Japanese Conference, 1991 |

In recent years, Korean oceanographers have begun to call it (in Korean journals mainly) as the "East Sea of Korea". Compromises among different languages often result in terrible English names such as the "Sea between Korea and Japan" (where is the port Vladivostok situated in this case?) or numerous forms of "East Sea".

Similar problems exist for other geographical features in Russian, Japanese and Korean papers (Table 4). The Russian coast of the JES has been called "Sibirea" sometimes (Cho, Bang, Shim and Yu, 1990; Seung and Kim, 1997) but this is not correct as Siberia is limited to the region west of ≈110°E. The region east of Siberia is called the "Far East". The part of the Far East bordering the JES is "Primorye", not "Primorsk" (Yoon, 1982) or "Primorskaya" (Moriyasu, 1972). The translation of "Primorye" as Maritime Province

is not correct too because it is a geographic name.

Table 4. Contradictions in geographic names used in the scientific literature of different countries.

| Russian | Korean | Japanese | Other |
|---|---|---|---|
| Primorye (district) | Siberia | Siberia | Sikhote-Alin |
| Ullindo (island) | Ulleung | | |
| East Korean Bay | Korean | | |
| | Korean strait | Tsushima | |
| La Perouse Strait | | Soya | |
| Tatarskii Strait | | | Gulf of Tartary |
| Nevelskogo Strait | | Mamiya | |
| Subarctic front | | Polar | |
| Primorskoye Current | | Liman | |

There are some contradictions in names of currents and water layers. A source of confusion is connected with name "Polar" thermal front (Isoda, Saitoh and Mihara, 1991). Maybe for Japanese oceanographers the Pole is situated just near Japan but Polar (Arctic) front is situated far from Japan and near the Arctic Pole. Such differences do not facilitate our knowledge in oceanography and make it more difficult to understand each other. A consequence of different definitions for the same features gives rise to Korean regional oceanography, Japanese regional oceanography and so on. Any science begins from definitions and we hope that common definitions will serve as the foundation of regional oceanography.

**Most interesting problems in the Japan/East Sea oceanography**

There were some fashionable problems and areas in regional oceanographic study. These included the Kuroshio, western boundary currents, El Niño, warm eddies, fine structure and so on. In the Japan/East Sea the following were mainly investigated:

- the penetration of waters of Amur River into the JES,
- the Primorye current,
- measurements of currents by drift bottles,
- the Tsushima Current,
- deep water formation,
- numerical calculations of averaged currents.

Before 1917, the northern and northwestern regions of the JES were investigated to a greater extent than to the southern and south-eastern regions. Currently, the situation is reversed. The number of papers devoted to the Tsushima Current is many times greater than the number describing the Primorye Current. Many papers focus on modeling water circulation but our knowledge of currents in northwestern part of the JES is so limited. When modeled currents and measured currents are compared, by region, there is good correspondence in well-studied southwestern area and poor correspondence in the poorly studied northern and northwestern parts of the JES. Some papers were concerned only with measurements of currents in inner area of the JES. Many papers were devoted to the Tsushima Strait area and some papers only to the Korean Bay and to the Tartar Strait areas.

What are most interesting problems in oceanography of the JES from our point of view? Firstly, the Liman (Primorye) Current is one of two main currents that have been investigated very poorly. We do not know where it is formed and what are the characteristics of its waters. Secondly, models of water transport through the straits is very simplified now. The models typically capture only the Tsushima inflow and the Tsugaru and LaPerouse outflow. But analyses of water characteristics show that there is outflow through the Tsushima Strait as well as inflow. There is complex transport in two other

straits too. As well, there are problems of layer of negative temperature in the Tartar Strait, the "chimney" near Vladivostok, the northwestern branch of Subarctic thermal front, eddy streets at 131°E and 134°E, and large-scale branching of the Tsushima Current near Kamoi Cape. Investigations of these will allow us to know more about most interesting sea in the world.

**Previous bibliographies on the Japan/East Sea**

Kaseno (1969) published the first list of 205 publications concerning the topography, geology and geophysics of the JES. Later, Yoshida and Shimizu (1972) published *The Kuroshio: Its Physical Aspects* as a bibliography on regional oceanography and this was the most complete list of Japanese papers at that time on that current. It included about 800 references covering a large geographical region, including the Subarctic area. A major achievement of that bibliography was a list of data sources. There are about 150 references about the JES but many papers from Japanese, Korean and Russian sources were not included.

In 1996 the first bibliography (641 papers) on the oceanography of the JES (Ocean Research, Vol. 18, No. 2) was published. Included with the reference list was a list of authors and annotation of some Russian papers. In 1997, the PICES bibliography of Mooers-Kang-Byun, contained about 240 references on papers on the JES. In 1998 “Bibliography of coastal and marine environment in the northwest Pacific” (NOWPAP publication No. 3) was published containing about 100 references on the JES. Although it did not provide a comprehensive review, a major advantage of this work is the list of addresses of organizations and scientists. It is also possible to find references in some reviews on oceanography of the JES but the number of reviews was not numerous.

**Sources of this bibliography**

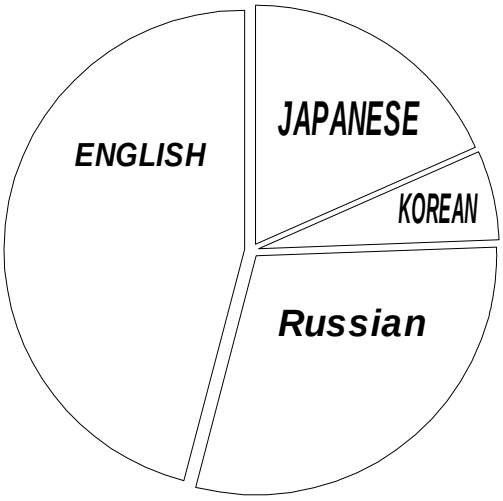
The search for publications to be included in the present bibliography was conducted by two ways: by examination of all accessible sources (in libraries of Vladivostok, Seoul, Ansan and Fukuoka) and also by examination of all references in available publications. A review of "Permudian …", abstract magazines and "Deep Sea Research (B)" essentially indicated that nothing new was missed. Japanese, Korean, English, American and Russian journals and irregular issues have be used. Among the Japanese journals that publish papers on the oceanography of the JES, the leading ones are "J. Oceanogr. Society of Japan" (J.Oceanography) and "La Mer". The Korean journals include "J. Oceanol. Society of Korea" (J. Korean Society of Oceanography). The basic Russian publications are dispersed in the numerous acyclic editions. Not all Japanese and Korean sources were accessible to the authors (especially irregular ones). As a result, the bibliography may miss some papers in irregular Japanese editions. The selection of publications of 1997-1998 is not complete. Atlases, charts, inquiry textbooks, monographs, scientific papers were included as were some manuscripts and informative reports and abstracts where the essence may not have been published afterwards.

The main focus of the bibliography is the physical oceanography of the JES (spatial distribution of temperature, salinity, currents and circulation). Some interesting papers devoted to bottom relief and meteorology can also be found. Papers on fisheries oceanography and hydrobiology are included. Some publications, from the authors' point of view, are only "informative noise" but we decided to allow scientists to choose whether or not to use such papers. It is disappointing that only three North Korean oceanographers are represented.

**Brief analysis of bibliography**

Most papers on JES oceanography were published by Russian (40%), Japanese (36%) and Korean (20%) scientists with occasional contributions from American authors (3%). Other countries did not contribute significantly to the study of the oceanography of the JES.

The main language used for JES publications was English but a similar number were written in Russian and Japanese. The number written in Korean was about three times less. Japanese oceanographers published about 50% of their papers in Japanese while Russian oceanographers use Russian about 90% of the time. About one-third of Korean publications were written in Korean. Because papers in Japanese, Russian and Korean are very difficult to understand by anybody other than native Japanese, Russians and Koreans authors, it is possible that the results of these investigations must await translation before they are used more widely in other countries. From this point of view, Korean oceanographers are in best position and Russian ones in worst situation. Progress in understanding the oceanography of the JES will be achieved by using one common language probably. It can be English, despite that it is not a native language for the countries situated around the JES.




**Distribution on languages**

From the author list, it is possible to identify those who have been most frequently published. The leaders are mostly from Korea (K.Kim-30, Y.H.Seung-28, J.H.Yoon-25, Y.Q.Kang-16). Among Japanese authors, the leader is Y. Isoda with 22 papers and among Russians - Y. Zuenko with 15 papers. Currently, in earth science it is possible to work alone but the number of papers with 2-6 authors is generally high. Large numbers of authors on a paper can probably be explained by the inclination to include project chiefs and friends. It is interesting that the number of pages in these publications is often small (8-12). Publications (up to 1994) on the JES oceanography generally consist of 6-20 pages. In spite of a relatively large quantity of papers of more than 20 pages, some contain very simple descriptions without deep analysis. The small number of papers with fewer than six pages indicates an inability to write simply and shortly.

Table 5. Some characteristics of references from 3 sample works.

| Publication | Total citations | Self-cited | Korea | Japan | Russia | Range |
|---|---|---|---|---|---|---|
| RUSSIAN<br>Yurasov & Yarichin, 1991 | 70 | 5 | 1 | 33 | 36 | 1869-1982 |
| KOREAN<br>Kim C.H.,Lie H.J., & Chu K.S., 1991 | 14 | 3 | 8 | 6 | 0 | 1934-1989 |
| JAPANESE<br>Isoda Y., Saitoh S. & Mihara M., 1991 | 15 | 1 | 0 | 14 | 0 | 1962-1988 |

It is interesting to appreciate the citations in papers of authors from various countries who work on the same problem. For the specific problem of water structure and water circulation of the JES, papers were presented at the Fifth JECSS Workshop and were published later (1991 in Elsevier Oceanogr. No. 54). Because there were no Russian papers on this problem, one of

recent Russian publication was added for comparison. The summary of citations appears in Table 5.

It appears that Russian authors are generally unable to use recent foreign papers. There is little knowledge by Russian and Japanese oceanographers of Korean papers, and a very weak knowledge by Korean and Japanese oceanographers of Russian papers.

**Monographs**

All published atlases contain highly smoothed climatic fields of water characteristics without typical features that were known at the time of publication, especially for the area north of the Subarctic (Polar) Front. It seems that preparing a detailed oceanographical atlas corresponding to the current state of knowledge of the JES is very achieveable. Fourteen atlases of temperature, salinity, chemical characteristics and ice have been published in Russia, five in Japan, two in Korea and one in the U.S.A. Among the monographs, there are four Russian books including FERHRI (1957), *Regional oceanography* (Leonov 1960), *Main features of hydrology and geology of the Japan Sea* (1961), and *Currents of the Japan Sea* (Yarichin & Yurasov 1991). Apart from these, there are many books devoted to the geology of the JES published by the Pacific Oceanological Institute in Vladivostok and one about plankton (1980). It is necessary to remember one additional Japanese monograph about the Tsushima Current (1974) and one American volume devoted mainly to politics and economy (1989).

The main source of knowledge on oceanography of the JES during the last decade was the Proceedings of JECSS and CREAMS Workshops.

**Acknowledgements**

The authors are very grateful to many persons for their help and contributions to the bibliography. K. Kim, D.J. Kang, Y.K. Cho and Y.G. Kim from Seoul University, J.H. Yoon, T. Kita and T. Abe from Kyushu University, Yu.I. Zuenko from the Pacific Institute of Fisheries and Oceanography, O. Ryabov from Tsukuba provided innumerous assistance. The authors will be obliged to those colleagues who will provide constructive remarks or proposals. For correspondence, please contact:

Mikhail A. Danchenkov
Far Eastern Regional Hydrometeorological Research Institute (FERHRI),
Fontannaya 24, Vladivostok, 690000 Russia,
E-mail: hydromet@online.ru or
danchenk@fastmail.vladivostok.ru).

## REFERENCES

All references appear in alphabetical order, sorted by the surname of the lead author. Single authored papers are listed before multi-authored papers. Each reference includes the name(s) of author(s), name of the paper, source (book, journal or irregular edition), year, volume, number, pages, language (if not English). Our comments on selected publications are included in italics within brackets [ ].

We found differences in citations of the same paper by different authors. These errors generally arose due to different translations from Japanese and Korean. To reduce the number of errors of this type, we obtained copies of papers reported in this bibliography. Where an asterisk '*' appears, we could not find this item (number of journal or language mainly). For example, one paper, published in Proceeding of International Conference at Vladivostok in 1927 does not identify a second name for Shirazawa so, it was marked by '*'.

# A


1. Abe K. (1990). Spectral characteristics of the 1983 Japan Sea tsunami observed in Japan. Tohoku Geophysical J., v.33, N 2, p.97-106.
2. Abe K., Ishii H. (1987). Distribution of maximum water level due to the Japan Sea tsunami on 26 May 1983. J. Oceanogr. Soc. Japan, v.43, N 3, p.169-182.
3. Adachi Y. (1986). Tsushima Current area. B. Japanese Soc. Fish. Oceanography, v.50, N 2, p.128-132.
4. Akabane M. (1998). Relationship of fisheries oceanography and fisheries. Standpoint of local prediction. B. Japanese Soc. Fish. Oceanography, v. 62, N 4, p.337-340, Jap.
5. Akabane M., Tamura M., Takahashi K. (1979). Water mass distribution and flows in the Tsushima Warm Current region. In: Reports of Studies On the Tsugaru Warm Current Region. Tokyo, p.228-236, Jap.
6. Akagawa M. (1954). On the oceanographical conditions of the north Japan Sea (west off the Tsugaru Strait) in summer (part 1). J. Oceanogr. Soc. Japan, v.10, N 4, p.189-199, Jap.
7. Akagawa M. (1955). On the oceanographical conditions of the north Japan Sea in summer (part 2). J. Oceanogr. Soc. Japan, v.11, N 1, p.1-7, Jap.
8. Akamatsu H. (1973). On the variation of heat exchange at the sea surface in the southern part of the Japan Sea during the period from November 1971 to March 1972. Umi to sora, v.48, N 4, p.131-143, Jap.
9. Akamatsu H. (1975). On the variation of heat exchange at the sea surface in the southern part of the Japan Sea during the period from November 1971 to March 1972. B. Maizuru Mar. Observatory, N 13, p.33-45.
10. Akamatsu H. (1975). On the oceanographic structure at the frontal zone in the Japan Sea. 1.Some measurements of horizontal divergence. Umi to sora, v.50, N 4, p.123-136, Jap.
11. Akamatsu H., Konaga S. (1979). Tracking of surface drogues near the oceanic front in the Japan Sea. Umi to sora, v.55, N 1, p.41-52, Jap.
12. Akhmatov.V.V. (1926). Oceanography. In: The Pacific Ocean. History of Russian Scientific Investigations. Leningrad, USSR Academy of Science, p.87-102, Russ. [*Schemes of prospective drift of Russian bottles in 1907-1912, 1915-1916, 1917-1918, 1919-1921*.]
13. Akitomo K., Awaji T. (1996). Open-ocean deep convection at high latitudes. Proc.Fourth CREAMS Workshop, Vladivostok, p.185-189.
14. Akiyama T., Sagi T., Yura T., Kimura K. (1966). On the distribution of in situ pH in the adjacent seas of Japan. The Oceanogr. Magazine, v.18, N 1-2, p.83-90.

15. Aksarina E.A. (1960). Types of baric fields over Tartar Strait in January-April. Trudy DVNIGMI, N 10, p.102-112, Russ. [*Using winter (January - April of 1949-1958) air pressure data, 12 types of baric fields were identified: 8-on compass points, intensive, cyclonic, anticyclonic, mixed and low gradient*]
16. Aldoshina E.I. (1957). Heat budget of the Japan Sea surface. Trudy GOIN, N 35, p.119-159, Russ.
17. Ambroz A.I. (1930). Anchovy and possibilities of its fishery in Peter the Great Bay. Rybnoye khozyaistvo Dalnego Vostoka, N 5-6, p.*, Russ.
18. Ambroz A.I. (1931). Herring of Peter the Great Bay. Izvestiya TINRO, v.6, p.1-313, Russ.
19. An H.S. (1974). On the cold water mass around the SE coast of Korean Peninsula. J.Oceanol.Soc.Korea, v.9, N 1-2, p.10-18.
20. An H.S., Chung J.Y. (1982). The fluctuations of the thermal front in the southwestern area off Korea. J.Oceanol.Soc.Korea, v.17, N 2, p.33-40.
21. An H.S., Seung Y.L., Chu K.S., Oh I.S. (1993). Investigation of the past data of the underwater earthquakes and tsunamis in the Donghae (the Japan Sea). J.Korean Earth Science Society, v.14, N 1, p.89-99, Kor.
22. An H., Shim K., Shin H.R. (1994). On the warm eddies in the southwestern part of the East Sea (the Japan Sea). J.Korean Soc.Oceanography, v.29, N 2, p.152-163.
23. Andreev A., Bychkov A., Tischenko P. (1996). Anthropogenic CO2 in the Sea of Japan. Proc.Fourth CREAMS Workshop, Vladivostok, p.175-180.
24. Anonymous (1898). Observations of surface water temperature and depth in Golden Horn Bay and in East Bosporus Strait. Zapiski po Gidrographii, N 17, p.*, Russ.
25. Anonymous (1947). The recurrence of fog in the Japan Sea. Manuscript, Vladivostok, FERHRI, 5 pp., Russ.
26. Aota M. (1968). Study of the variation of oceanographic condition north-west off Hokkaido in the Sea of Okhotsk. Low Temperature Science, ser.A, v.26, p.351-360, Jap.
27. Aota M. (1971). Study of the variation of oceanographic condition to the north-east off Hokkaido in the Sea of Okhotsk. Low Temperature Science, ser.A, N 29, p.213-224, Jap.
28. Aota M. (1975). Studies on the Soya Warm Current. Low Temperature Science, ser.A, v.33, p.151-172, Jap.
29. Aota M. (1982). On oceanic structure of a frontal region of Soya Warm Current. Preliminary report. Low Temperature Science, ser.A, N 41, p.207-215, Jap.
30. Aota M. (1984). Oceanographic structure of the Soya Warm Current. B. Coastal Oceanography, v.22, p.30-39, Jap.
31. Aota M., Ishikawa M. (1991). Fresh water supply to the Sea of Okhotsk and volume transport of Soya Warm Current. B. Hokkaido Natl.Fish.Res.Institute, N 55, p.109-113, Jap.
32. Aota M., Ishikawa M., Yamada T. (1988). Dynamics of flow in the Soya Strait. Low Temperature Science, ser.A, N 47, p.147-160, Jap.
33. Aota M., Kawamura T. (1978). Observation of oceanographic condition in the Okhotsk Sea coast of Hokkaido in winter. Low Temperature Science, ser.A, v.37, p.93-105, Jap.
34. Aota M., Matsuyama M. (1987). Tidal current fluctuations in the Soya Current. J.Oceanogr.Soc.Japan, v.43, N 5, p.276-282.
35. Aota M., Nagata Y., Inaba *., Matsuyama Y., Ono N., Kanari S. (1985). Soya Warm Current.A typical ocean current flowing over shelf region. In: Ocean Characteristics and Their Changes. Tokyo, p.164-187, Jap.
36. Aoyama M. (1982). On the water mass in the south-western Okhotsk Sea and relationship between reactive silica, salinity and temperature. B. Japanese Soc. Fish. Oceanography, N 41, p.53-57, Jap.
37. Aragawa M. (1954). On the oceanographical conditions of the northern Japan Sea in summer (1). J.Oceanogr.Soc.Japan, v.10, N 4, p.189-199.

38. Aratskaya V.V. (1961). Density of water of the Japan Sea. In:Stepanov V.N.(ed.) General Features of Geology and Hydrology of the Japan Sea. Moscow, Academy of Sciences of USSR, p.179-182, Russ. [*The description of seasonal (winter and summer) density is modest (5 pages) compared with the description of temperature and salinity in the same source. The data (quantity was not given)- from 1915 to 1956- were averaged on 1 x 1 squares.Two simplified figures (surface density for winter and summer) were included. The maximum density at the surface in summer was located near LaPerouz Strait. In winter the density was uniformly distributed between 27.1-27.2 (where is the density 27.3-27.4 described in the text- not clearly). It was stated that in summer the density of waters in deep layer is up to 27.4 (?).*]
39. Asai T., Kato K. (1981). Air-sea heat budget and seasonal variations of the Tsushima Warm Current in the Japan Sea. Kaye Kagaku, v.13, N 6, p.407-413, Jap.
40. Asaoka O., Hashimoto Y., Katayama K. (1985). Physical oceanography of the Wakasa Bay. In: Coastal Oceanography of Japanese Islands. Tokyo, p.958-968.
41. *ATLAS OF DANGEROUS AND VERY DANGEROUS CONDITIONS FOR NAVIGATION AND FISHERIES.THE JAPAN SEA (1980)*. Moscow, USSR Ministry of Defence, p.5-87, Russ.
42. *ATLAS OF SURFACE CURRENTS OF NORTH-WESTERN PACIFIC (1959)*. Leningrad, Hydrogr.Office of USSR Navy, 13 pp, Russ.
43. *ATLAS OF THE SEA SURFACE TEMPERATURE OF THE NORTHERN JAPAN SEA BY AIRPLANE MEASUREMENTS (1983)*. Yuzhno-Sakhalinsk, 39 pp., Russ. [*Data of airplane SST observations (number of observations is unknown in 1968-1982) were averaged in quadrants 20'x20'. The charts of mean,maximal and minimal month SST are made for the area northward of 41°N eastward of 133°E.*]
44. *ATLAS OF TYPICAL WINDS OF THE JAPAN SEA (1955-1964) (1979)*. Ed.Yakunin L.P. Vladivostok, 93 pp., Russ.
45. *ATLAS OF THE WAVES AND WINDS OF THE JAPAN SEA (1968)*. Ed.Rzheplinskii G.V. Vladivostok, 153 pp., Russ.
46. Aubrey D.G., Emery K.O. (1986). Relative sea levels of Japan from tide-gauge records. B. Geological Soc. America, v.97, N *, p.194-205.

# B

47. Baba N., Ebara S., Takatani S. (1985). Distribution of phosphate concentration in the Japan Sea. Umi to sora, v.60, N 3, p.127-143, Jap.
48. Bakanov I.D., Borisov A.S., Kudin A.M. (1992). The study of intermittent hydrophysical fields in the vicinity of the frontal zone. Morskoi Gydrophyzicheskii Zhurnal, N 2, p.71-75, Russ. [*The heterogeneity of the water temperature field was determined by statistical methods using data from one survey (July 1988) in the western part of Subarctic (Polar) Front. Distribution of their size is approximated by the exponential law.*]
49. Bakanov I.D., Borisov A.S., Kudin A.M. (1993). The study of intermittent hydrophysical fields in the vicinity of the frontal zone. Phys. Oceanography, v.4, N 2, p.163-168.
50. Bang I., Choi J.K., Kantha L.H., Suk M.S., Chang K.I., Nam S.Y. (1995). A nowcast/forecast experiment in the East Sea. Proc.8 JECSS/PAMS Workshop, p.179-180.
51. Barabashkina A.P. (1960). Warm and cold summers in Primorye and Sakhalin. Trudy DVNIGMI, N 10, p.38-67, Russ.
52. Barabashkina A.P., Leskova E.A. (1958). Investigation of typhoons crossing the Japan Sea and the Primorye area. Trudy DVNIGMI, N 3, p.3-32, Russ.
53. Batalin A.M. (1941*). ATLAS OF THE SURFACE CURRENTS OF THE JAPAN SEA*. Hydrometeorological Office of USSR Pacific Navy, 24 pp., Russ. [*Set of schemes of currents as new (geostrophic schemes for a northwest part of the sea in May 1939; along*

*the Primorye coast in October, November and December 1940), and as previously published (Wust,1936; Uda,1934; Uda,1932; Hydrogr.B.,1926-1932).*]

54. Batalin A.M. (1947). Variation of water temperature of the Japan Sea in 1941-1944. Trudy GOIN, N 2, p.27-41, Russ. [*The period from 1922-1937 was determined as a warm one. The general downturn of sea surface water temperature from 1939-1947 was marked. Strengthening of winter and the easing of summer monsoon was proposed as the reason for the warming.*]
55. Batalin A.M. (1959). Thermal balance of the Far Eastern Seas. Izvestiya Akademii nauk SSSR, ser.Geofizika, N 7, p.1003-1010, Russ.
56. Batalin A.M. (1968). The Results of Science Development at USSR Far East During 50 Years of Soviet Rule.1. Oceanography. Vladivostok, Siberian Branch of USSR Academy of Sciences, 102 pp., Russ.
57. Batalin A.M., Illinskii O.K., Kuzmin D.N. (1945). Hydrometeorological characteristics of the Japan Sea. Moscow-Leningrad, Girdometeoizdat, * pp., Russ.
58. Beardsley R.C., Limeburner R., Kim K., Candela J. (1992). Lagrangian flow observations in the East China,Yellow and Japan Seas. La Mer, v.30, N 3, p.297-314.
59. Belinskii N.A., Istoshin Yu.V. (1950). Primorye Current on the data of R/V "Rossinante" cruise in 1936. Trudy TCIP, N 17, p.132-143, Russ. [*Five surveys in 1936 (April-May, May-July, August-September, September-October, November-December) with measurements of temperature, salinity and currents in the area of Peter the Great Bay and off the southern Primorye coast are described in detail. A good review of previous investigations and general current schemes were given.*]
60. Belinskii N.A., Istoshin Yu.V. (1950). On winter water flow through Nevelskoy Strait. Trudy TCIP, N 17, p.144-153, Russ. [*Results of current measurement at 3 levels from ice (winter of 1938-1939) and data of bottle drifts (1935-1940) in Nevelskoy Strait and in the estuary (Liman) of the Amur River are analysed. Considerable difference between winter and summer tidal and non-periodical currents were determined.*]
61. Belinskii N.A., Istoshin Yu.V. (1956). The Japan Sea. In: The seas washing the coast of USSR . Moscow, Publ.House of USSR Ministry of Defense, p.21-33, Russ. [*Reference book. General characteristics. Primorye Current was specified existing in all seasons (in summer close to the coast, branching in winter). The salinity of deep waters was specified incorrectly (up to 34.3‰).*]
62. Belinskii N.A., Trufanov A.A. (1941). Subjugation of nature. Pogoda, N 6, p.6-9, Russ.
63. Belyaev V.A., Darnitskii V.B., Poves'ma A.N. (1996). Preliminary results of expedition to the Japan Sea on R/V "TINRO" in autumn of 1995. Proc.Fourth CREAMS Workshop, Vladivostok, p.181-183.
64. Benashvili I.A. (1946). Main states of the long-term forecast of ice formation in the Japan Sea. Trudy GOIN, ser.5, N 12, p.3-6, Russ.
65. Bersenev I.I. (1987). Morphological divisions of the Japan Sea relief. In: Ablaev A.G.(ed.) Geology of bottom of the Japan Sea. Vladivostok, p.7-10, Russ. [*Features of bottom relief, basins and rises are described. Area of the Japan Sea is divided by morphological peculiarities.*]
66. Biryulin G.M. (1954). Hydrometeorological characteristics of fishery areas of Southern Sakhalin. In: Works of Kuril-Sakhalin cooperative expedition of ZIN-TINRO in 1947-1949. Moscow, USSR Academy of Sciences, v.1, p.167-303, Russ.
67. Biryulin G.M., Mikulich L.V., Biryulina M.G., Yakunin L.P. (1970). A summer modification of the Peter the Great Bay (waters). Trudy DVNIGMI, N 30, p.286-293, Russ. [*The review includes a simplified description of temperature and salinity of Peter the Great Bay (the initial data were not described). It affirms that in winter there is only one water mass ("to speak about water masses in a winter in Peter the Great Bay is not meaningful") and also*

*one water mass ("water mass of Primorye Current") in summer, which the authors divided (using the distribution of biological objects) into three "sub-types of waters": estuarial (23°C, <31 ‰), surface coastal (16-23°C, 31-33‰) and subsurface (2-16°C, 34‰). The basic conclusion is that summer stratification is an important geophysical factor*.]

68. Blagoderov A.I. (1991). Conditions of sardine migration in the Japan Sea in period of short-term increase of population. Abstracts of USSR conference "Rational use of bioresources of Pacific ocean". Vladivostok, TINRO, p.84-85, Russ. [*The migration of sardine (following 8-10°C isotherms) occurs on the north by two ways: between 130-133°E and between 133-135°E*.]
69. Bogaevskii V.T. (1951). Greasing herring of coastal south-western Sakhalin. Izvestiya TINRO, v.34, p.5-24, Russ.
70. Bokhan L.N. (1984). Inter-annual variation of plankton of the Japan Sea. Izvestiya TINRO, v.109, p.86-93, Russ.
71. Bong J.H. (1976). Heat exchange at the sea surface in the Korean coastal sea. J.Oceanol.Soc.Korea, v.11, N 2, p.43-50, Kor.
72. Bottom geology of the Japan Sea (1987). Vladivostok, 137 pp., Russ.
73. Boyd J.D. (1995). Descriptive physical oceanography of the North Pacific, Sea of Japan (East Sea) and Sea of Okhotsk. Arctic Research, v.9, p.72-80.
74. Brazhnikov V. (1906). Materials on topography and physical geography of Nikolaev' fishing area. In: Fisheries of Far Eastern Russia. p.*, Russ.
75. Brazhnikov V. (1907). Materials on fauna of Russian Eastern Seas,collected by schooner "Storozh" in 1899-1902. Zapiski Akademii nauk, v.20, N 6, p.*, Russ.
76. Brodskii K.A. (1935). Materials for the understanding of zooplankton of the Japan Sea. Vestnik DVF Akademii nauk SSSR, N 14, p.125-135, Russ.
77. Brodskii K.A. (1936). Short preliminary report on plankton investigations and works on Far Eastern sardine nutrition in 1935. Vestnik DVF Akademii nauk SSSR, N 18, p.155-160, Russ.
78. Brodskii K.A. (1937). Investigations of plankton in the north-western Japan Sea. Izvestiya TINRO, v.12, p.159-182, Russ.
79. Brodskii K.A. (1941). On the plankton of deep layers in the Japan Sea. In: Investigations of the USSR Far Eastern Seas, N 1, p.256-263, Russ.
80. Brodskii K.A. (1941). A review of quantitive distribution and components of zooplankton in the North-Western part of the Japan Sea. Trudy Zoologicheskogo Instituta, v.7, N 2, p.158-216, Russ.
81. Brodskii K.A. (1955). Zoogeographic division of pelagic regions of the Far Eastern Seas of USSR and northern part of the Pacific Ocean (by Calanoida). Doklady Akademii nauk SSSR, v.102, N 3, p.649-652, Russ.
82. Brodskii K.A. (1955). Plankton. In:*ATLAS OF OCEANOGRAPHIC BASES OF THE FISHERIES OF SOUTHERN SAKHALIN AND SOUTHERN KURIL ISLANDS*. Leningrad-Vladivostok, TINRO, v.1, p.1-67, Russ.
83. Brodskii K.A. (1959). Zooplankton of southern Sakhalin and southern Kuril islands. In: Investigations of Far Eastern Seas of the USSR", N 6, p.5-46, Russ.
84. Brodskii K.A. (1993). Investigation of zooplankton of Far Eastern seas in Far Eastern Branch of USSR Academy of Sciences in 1933-1953. Biologiya Morya, N 2, p.112-121, Russ.
85. Brodskii K.A., Yankovskaya A.I. (1935). On nutrition of Far Eastern sardine. Vestnik DVO Akademii nauk SSSR, N 13, p.103-115, Russ.
86. Bubnov V.K. (1939). Hydrological conditions of the Japan Sea. Leningrad, Hydrogr.Office of USSR Navy, 13 pp., Russ. [*Detailed review of M.Uda (1936) paper*.]
87. Budaeva V.D. (1975). To the problem of variability of thermal conditions by the south-western coast of Sakhalin Island,in Aniva Bay and in South-Kuril Strait. Izvestiya TINRO, v.95,

p.9-16, Russ. [*Spectral analysis of measurements of surface water temperature at 6 meteorological stations of Sakhalin (3 of them there are in the Japan Sea) from 1948 till 1972 (Japanese data were not used). Basic periods of variability of water temperature are determined (in Nevelsk- 0.5, 1.0, 2.0 years; in Kholmsk- 0.5, 1.0, 1.6 years; in Uglegorsk- 0.5, 1.0, 2.0 years)*.]

88. Budaeva V.D., Kharitonova G.Yu. (1980). Application of Yoshida model for the calculation of vertical circulation of water in some areas of the shelf of Sakhalin Island. Trudy DVNIGMI, N 86, p.119-126, Russ. [*Calculation of vertical currents on wind tension (by climatic air pressure) and density using 3318 oceanographic stations in Tartar Strait and 3721 stations in the Okhotsk Sea. Upwelling dominates in autumn (with maximal velocity up to 0.0001 cm/s in SW Tartar Strait (except the northern part) and up to 0.0005 cm/s in Aniva Bay). Weak upwelling dominates in spring, but there is weak downwelling in the central part of Tartar Strait. Downwelling sharply dominates in summer (up to 0.0001 cm/s by south-western Sakhalin coast) with exception of SW Tartar Strait where slight upwelling exists. The stability of upwelling in SW Tartar Strait is emphasized*.]
89. Budaeva V.D., Makarov V.G., Bulgakov S.N. (1981). Water circulation in Tartar Strait and it's seasonal variation. Trudy DVNIGMI, N 83, p.35-43, Russ. [*Example of good diagnostic calculation of currents. Model of V.F.Kozlov (448). Mesh- 0.5 x 0.25.The transport through LaPerouse Strait is accepted as 0.3 Sv in spring and autumn and 0.2 Sv in summer. A = 100 cm$^2$/sec. The bottom relief was taken from navigation charts with scale 1:500 000. The fields of surface atmospheric pressure were taken from monthly averaged charts (Atlas of northern hemisphere, 1975). 3615 stations were used (1960-1977). The distribution of stations was not presented. Results were given only at the surface only for 4 seasons. The main features of water circulation in winter: wide (through the whole Tartar Strait) water movement on the south (velocity- 30-100 cm/s). In a summer there is wide (through almost whole strait) movement on the north (velocity- 10-100 cm/s)*.]
90. Budaeva V.D., Makarov V.G., Mel'nikova I.Yu. (1980). Diagnostic calculations of constant currents in Aniva Bay and in Laperouse Strait. Trudy DVNIGMI, N 87, p.66-78, Russ.
91. Budtolaev N.M. (1961). About the possibility of the change of climate in Tartar Strait area. Meteorologiya i gydrologiya, N 2, p.49-52, Russ. [*Proposal to block Tartar Strait for improvement of a climate in Primorye(Maritime) province*.]
92. Bulgakov N.P. (1968). Sea ice. In: Kort V.G. (ed.) Hydrology of the Pacific Ocean. Moscow, Nauka, p.434-468, Russ.
93. Bunimovich L.A., Ostrovsky A.G., Umatani S. (1992). Observations of the fractal properties of the Japan Sea surface temperature patterns. Proc. PORSEC-92, v.1, Okinawa, p.510-515.
94. Bunimovich L.A., Ostrovskii A.G., Umatani S. (1993). Observations of the fractal properties of the Japan Sea surface temperature patterns. Int.J.Remote Sensing, v.14, N 11, p.2185-2201.
95. Byun S.K. (1989). Sea surface cold water near the south-eastern coast of Korea: wind effect. J.Oceanol.Soc.Korea, v.24, N 3, p.121-131.
96. Byun S.K. (1991). Current structure in the Korea Strait. Proc.Symp.on the Sea between Korea and Japan.Seoul, p.18-26.
97. Byun S.K., Chang S.D. (1984). Two branches of Tsushima Warm Current in the western channel of the Korea Strait. J.Oceanol.Soc.Korea, v.19, N 2, p.200-209.
98. Byun S.K., Chang S.D. (1988). Tsushima Current Water at entrance of the Korea Strait in autumn. Prog.Oceanography, v.21, N 3-4, p.295-296.
99. Byun S.K., Jeon D., Chang K.I., Kim C.S., Shin H.R. (1995). Hydrography and currents in the midwestern part of the East Sea in November 1994. Proc.8 JECSS/PAMS Workshop, p.95-96.

100. Byun S.K., Kim C., Chang K.I. (1996). Movement of an eddy observed in the southwest of East Sea during 1994-1995. Proc.Fourth CREAMS Workshop,Vladivostok, p.51-52.
101. Byun S.K., Seung Y.H. (1984). Description of current structure and coastal upwelling in the south-western Japan Sea.Summer 1981 and spring 1982. In: Ichiye T.(ed.) Ocean hydrodynamics of the Japan and East China Seas. Tokyo, Elsevier, p.83-93.

# C

102. Chang K.I., Suk M.S., Jeon D., Nam S.Y. (1995). Penetration of the Kuroshio into the East Sea (Sea of Japan). Proc.8 JECSS/PAMS Workshop, p.58-59.
103. Chang S.D., Kim J.K. (1993). The effect of wind stress in the southwestern coastal waters of the Japan Sea. B.Korean Fish.Society, v.26, N 6, p.538-548.
104. Chang S.D., Kim J.K. (1994). Drogue tracking in the coastal waters of Ulleungdo-Tokto in summer. B.Korean Fish.Society, v.27, N 5, p.583-593, Kor.
105. Chang S.D., Lee J.S., Suh J.M. (1988). Empirical orthogonal function analysis on the monthly variation of flow pattern in the East Sea of Korea. B.Korean Fish.Society, v.21, N 6, p.323-330, Kor.
106. Chen C.T., Bychkov A.S., Gong G.C., Salyuk A.N, Andreev A.G., Wang S.L., Pavlova G.Yu. (1996). Carbonate chemistry of the Japan Sea (dissolution and decomposition rates of particulate matter). Proc.Fourth CREAMS Workshop, Vladivostok, p.165-170.
107. Chen C.T., Wang S.L., Bychkov A.S. (1995). Carbonate chemistry of the Sea of Japan. J.Geoph.Research, v.100, N 7, p.13737-13745.
108. Chio C.Y. (1986). An influence of the variance of oceanographical conditions in the East Sea of our country on sardine fishing grounds location in spring-summer season. Susan Kwahak Kisul, v.1, p.3-17, Kor.
109. Chisako R. (1981). One of the way of the sea surface temperature forecast of the Japan Sea in summer season. J.Meteorol.Research, v.33, N 3-4, p.11-14, Jap.
110. Cho H.J., Moon H.S., Kang W.B., Lee K.W. (1997). Regeneration processes of nutrients in the Polar front area of the East Sea. 3.Distribution patterns and nutrients in the middle-northern East Sea of Korea in October,1995. J.Korean Fish.Society, v.30, N 3, p.393-407, Kor.
111. Cho K.D., Bang T.J., Shim T.B., Yu H.S. (1990). Three-dimensional structure of the Ulleung Warm Lens. B.Korean Fish.Society, v.23, N 4, p.323-333.
112. Cho K.D., Choe Y.K. (1988). Seasonal variation of the water type in the Tsushima current. B.Korean Fish.Society, v.21, N 6, p.331-340, Kor.
113. Cho Y.K., Kim K. (1994). Two modes of the salinity minimum layer water in the Ulleung Basin. La Mer, v.32, N 4, p.271-278.
114. Cho Y.K., Kim K. (1996). Seasonal variation of the East Korean Warm Current and its relation with the cold water. La Mer, v.34, N *, p.103-113.
115. Cho Y.K., Kim K. (1998). Structure of the Korea Strait Bottom Cold Water and its seasonal variation in 1991. Cont.Shelf Research, v.18, N 7, p.791-804.
116. Choe S. (1971). Studies on marine sediments of the Korean seas.1.Concentrations and distributions of some geochemical elements in sediments from the sea off eastern Korea. J.Oceanol.Soc.Korea, v.6, N 1, p.1-15, Kor.
117. Choi B.H., Bang I.K., Kim K.H. (1994). Vertical distribution of tidal current in the Korea Strait. J.Korean Soc.Coastal and Ocean Engineering, v.6, N 4, p.421-438.
118. Choi B.H., Kim K., Kim Y.G., Bahk K.S., Choi J.O., Kawatate K. (1992). Submarine cable voltage measurements between Pusan and Hamada. La Mer, v.30, N 3, p.156-167.
119. Choi B.H., Kim K., Kim Y.G., Kawatate K. (1997). Submarine cable voltage measurement between Pusan and Hamada for the years 1987-1996. Acta Oceanogr.Taiwanica, v.36, N 1, p.33-45.

120. Choi B.H., Kim K., Park K.A., Chung J.Y. (1994). Satellite drifters in CREAMS. Proc.Third CREAMS Symposium, Seoul, p.5-10.
121. Choi B.H., Lie H.J. (1992). Physical oceanography programme of the East China Sea and the East Sea (Japan Sea) dynamics in Korea. Report on PORSEC-92 Conference. Manuscript, Suwon, 28 pp.
122. Choi J.W., Koh C.H. (1990). Distribution pattern of polychaete worms on the continental shelf and slope of the East Sea (south-western Sea of Japan). J.Oceanol.Soc.Korea, v.25, N 1, p.36-48.
123. Choi S.H., Hwang J.S., Kim K.R. (1995). Initial report on CO2 study in the East Sea (Japan Sea). Proc.8 JECSS/PAMS Workshop, p.194-195.
124. Choi S.W., Kang Y.Q. (1987). Empirical orthogonal function analysis of coastal water temperatures in the Tsushima Current region. B.Korean Fish.Society, v.20, N 2, p.89-94.
125. Choi Y.K., Cho K.D. (1997). Distribution of the East Sea intermediate water in November 1994. J.Korean Fish.Society, v.30, N 1, p.119-127, Kor.
126. Choi Y.K., Cho K.D., Yang S.K. (1995). Chimney occurance in the Japan Sea. Proc.8 JECSS/PAMS Workshop, p.102-103.
127. Chough S.K. (1983). Marine geology of Korean Seas. Boston. Int. Human Res. Develop. Corp., 157 pp.
128. Chu C., Chen Y., Lu S. (1998). Temporal and spatial variabilities of Japan Sea surface temperature and atmospheric forcings. J.Oceanography, v.54, N 3, p.273-284.
129. Chung C.C., Shim J.H., Park Y.C., Park S.G. (1989). Primary productivity and nitrogenous nutrient dynamics in the southeastern sea of Korea. J.Oceanol.Soc.Korea, v.24, N 1, p.52-61, Kor.
130. Chung J.Y. (1975). Characteristics of stability and intensity of vertical transfer in the western channel of the Korea Strait. J. Oceanol. Soc. Korea, v.10, N 2, p.57-66.
131. Climate of Vladivostok (1983). Leningrad, Gydrometeoizdat, 248 pp., Russ.
132. *CLIMATIC AND HYDROLOGICAL ATLAS OF THE JAPAN SEA (1955)*. Ed.Samoylenko V.S. Leningrad,Gydrometeoizdat, 100 pp., Russ.
133. *CLIMATOLOGY OF HYDROGRAPHIC AND CHEMICAL PROPERTIES OF THE JAPAN SEA (1985)*. Maizuru, Maizuru Mar.Observatory, p.3-51.
134. *COMPOSITE HYDROMETEOROLOGICAL ATLAS OF THE JAPAN SEA (1968)*. Ed.Shekhtman A.N. Leningrad, Gydrometeoizdat, 296 pp., Russ.
135. Conlon D.M. (1981). Dynamics of flow in the region of Tsushima Current. Louisiana St.Univ. Techn.Rep. N 312, 62 pp.
136. Conlon D.M. (1982). On the outflow modes of the Tsugaru Warm Current. La Mer, v.20, Sp.N, p.60-64.

# D

137. Danchenkov M.A. (1998). Oceanography of Tartar Strait. Manuscript. Vladivostok, FERHRI, 48 pp.
138. Danchenkov M.A., Goncharenko I.A. (1994). Variation of hydrological characteristics along 132E in the Japan Sea. Proc.Third CREAMS Workshop, Seoul, p.19-22.
139. Danchenkov M.A., Hong G.H., Kim K., Zuenko Yu.I. (1996). Bibliography of the East Sea (Japan Sea) oceanography. Ocean Research, v.18, N 2, p.183-220.
140. Danchenkov M.A., Kim K., Goncharenko I.A. (1995). The water structure and its variation along 132E in 1993-1994. Proc.8 JECSS/PAMS Workshop, p.88-91.
141. Danchenkov M.A., Kim K., Goncharenko I.A., Kim Y.G. (1996). A "chimney" of cold salt waters near Vladivostok. Proc.of the PICES Workshop on the Okhotsk Sea and adjacent areas, p.198-201.

142. Danchenkov M.A., Kim K., Goncharenko I.A. (1996). Extremal winters in the NW part of the East/Japan Sea by monthly air temperature. Proc.Fourth CREAMS Workshop, Vladivostok, p.7-16.
143. Danchenkov M.A., Lobanov.B., Nikitin A.A. (1997). Mesoscale eddies in the Japan Sea,their role in circulation and heat transport. Proc.CREAMS Int.Symposium,Fukuoka, p.81-84.
144. Danchenkov M.A., Nikitin A.A., Volkov Yu.N., Goncharenko I.A. (1997). Surface thermal fronts of the Japan Sea. Proc.CREAMS Int.Symposium, Fukuoka, p.75-79.
145. Danchenkov M.A., Zakharova O.I. (1978). Bibliography of the Kuroshio. Vladivostok, Far Eastern Branch of USSR Academy of Science, 82 pp., Russ.
146. Darda M.A. (1968). The results of investigation of the Japan Sea humpback salmon in 1961-1963 before spawning. Izvestiya TINRO, v.65, p.80-96, Russ.
147. Dashko N., Varlamov S.M., Han Y.H., Ivanova A.I. (1996). Synoptical centers of atmospheric action of the Asian-Pacific region and weather peculiarities. Proc.Fourth CREAMS Workshop, Vladivostok, p.23-28.
148. Demidova M.T. (1939). Materials on biology of yellow-string flat-fish. Vestnik DVF Akademii nauk SSSR, N 33 (1), p.173-190, Russ.
149. Derbek F.A. (1910). Report on works made by the ship "Okhotsk" during hydrographic expedition in 1909. Year-Book of Zoological Museum of Russian Academy of Sciences, v.15, p.*, Russ.
150. Derbek F.A. (1913). Report on works made during hydrographic expedition in the East Ocean in 1912. Year-Book of Zoological Museum of Russian Academy of Sciences, v.18, N 1-2, p.*., Russ.
151. Deryugin K.M. (1928). Investigations in the Japan Sea. Nauchnoye slovo, N 4, p.50-64, Russ.
152. Deryugin K.M. (1928). The foundation of Pacific scientific station and its scientific works. Izvestiya TINRO, v.1, N 1, p.5-75, Russ.
153. Deryugin K.M., Ushakov P.V., Tarasov N.I. (1929). On hydrobiological investigations in Pacific expedition of the State Hydrological Institute in 1926-1928. Izvestiya GOIN, N 23, p.105-110, Russ.
154. Deryugin K.M. (1930). Japanese hydrological investigations in the Japan and Okhotsk Seas. Zapiski po Gidrographii, v.59, p.35-51, Russ.
155. Deryugin K.M. (1932). Investigations of the USSR Seas,made by the State Hydrological Institute in 1932. Izvestiya GOIN, N *, p.58-60, Russ.
156. Deryugin K.M. (1932). Brief review of investigations made in autumn 1931 at Russian Far East area. Izvestiya GOIN, N 42, p.52-67, Russ.
157. Deryugin K.M. (1933). Investigation of Far Eastern Seas. Priroda, N 10, p.32-37, Russ.
158. Deryugin K.M. (1933). Brief review of investigations during Pacific expedition of the State Hydrological Institute and Pacific Institute of Fishery in 1932. Rybnoye Khozyaistvo, N 1, p.24-28, Russ.
159. Deryugin K.M. (1933). Pacific expedition of the State Hydrological Institute in 1932. In: Investigations of the USSR Seas, N 19, p.5-35, Russ.
160. Deryugin K.M. (1934). Works of Pacific expedition of the State Hydrological Institute in 1932. B.Pacific Committee of USSR Academy of Sciences, N 3, p.29-32, Russ.
161. Deryugin K.M. (1935). Works of Pacific expedition of the State Hydrological Institute in 1933. In: Investigations of the USSR Seas, N 22, p.5-24, Russ.
162. Deryugin K.M. (1939). Zones and biocoenosis of Peter the Great Bay (the Japan Sea). In: Collected papers in honour of N.M.Knipovich. Moscow-Leningrad, Pischepromizdat, p.115-142, Russ.
163. Deryugin K.M., Somova N.M. (1941). Materials on quantitive benthos of Peter the Great Bay (the Japan Sea). In: Investigations of the USSR Far East Seas, N 1, p.13-36, Russ.

164. Dobrovolskii A.D., Zalogin B.S. (1965). The Japan Sea. In: Seas of the USSR. Moscow, Mysl, p.213-224, Russ.
165. Dobrovolskii A.D., Zalogin B.S. (1982). The Japan Sea. In: Seas of the USSR. Moscow, Moscow State University Publishing House, p.173-189, Russ. [*Textbook.The basic characteristics of sea waters .The average salinity of the sea in winter is not correctly reported (34.08-34.10‰ instead of 34.05-34.07‰). Only three of five water masses are specified (subsurface low salinity and cold subsurface layer are not specified). The thermal front was in accordance with Suda (1936), Primorye Current - with M.Uda (1934) papers.*]
166. Dolganova N.T. (1996). Mezoplankton distribution in the west Japan Sea. Proc.Workshop on the Okhotsk Sea and adjacent areas. Sidney, p.318-319.
167. Doronin Yu.P. (1986). Far Eastern Seas. In: Regional Oceanography. Leningrad, Gidrometeoizdat, p.223-250, Russ.
168. Druzhinin A.D. (1954). Materials on flounder of Aniva Bay. Izvestiya TINRO, v.41, p.343-347, Russ.
169. Druzhinin A.D., Fridlyand I.G. (1951). Some information on anchovy in Sakhalin waters. Izvestiya TINRO, v.35, p.186-187, Russ.
170. Dudarev V.A. (1985). The age-size composition of the Japan Sea sardine in different conditions of their quantity. In: The Herring of Northern Pacific Ocean. Vladivostok, TINRO, p.63-76, Russ.
171. Dudarev V.A., Demina T.V., Shvydkii G.V. (1982). Conditions and migration of sardine *(Sardinops sagax, Melanosticta schlegel*) in the northern Japan Sea. In: Ecology and Conditions of Fishes and Invertebrates Reproduction in Far Eastern Seas and North-Western Pacific Ocean. Vladivostok, TINRO, p.11-23, Russ.
172. Dudarev V.A., Shatilina T.A. (1981). The influence of hydrological conditions on iwashi distribution in the Japan Sea. Rybnoye Khozyaistvo, N 10, p.50-51, Russ.
173. Dudarev V.A., Shatilina T.A. (1984). New data on migration and distribution of sardine in the Japan Sea. In: The Conditions of the Formation of Fishes Accumulation. Moscow, VNIRO, p.140-151, Russ.
174. Dudnik-Mokievskaya V.V. (1954). On distribution of chemical elements along south-western coast of Sakhalin and Aniwa Bay. In: Works of Kuril-Sakhalin Cooperative Expedition of ZIN and TINRO". Moscow, USSR Academy of Sciences, v.1, p.391-412, Russ.
175. Dulepov E.P., Lapshinov V.I., Blagoderov A.I. (1990). The elements of pelagic ecosystem functioning of the Japan Sea. Izvestiya TINRO, v.111, p.146-152, Russ.
176. Dyakov B.S. (1996). The long-term variations of temperature and salinity in the south-western Japan Sea in a winter. Proc.Fourth CREAMS Workshop.Vladivostok, p.95-99.

# E

177. Ebuchi N., Kawamura H., Toba Y. (1992). Growth of wind waves with fetch observed by GEOSAT altimeter in the Japan Sea under winter monsoon. J. Geophys.Research, v.97, N 1, p.809-819.
178. Ebuchi N., Toba Y., Kawamura H. (1992). Statistical study on the local equilibrium between wind and wind waves by using data from ocean data buoy stations. J. Oceanography, v.48, N 1, p.77-92.
179. Egawa T., Nagata Y., Sato S. (1993). Seasonal variation of the current in the Tsushima Strait deduced from ADCP data of ship-of-opportunity. J. Oceanography, v.49, N 1, p.39-50.
180. Emel'yanov A.A. (1937). The founding of sea turtle *Dermochelys corlacea (*Linneus*)* at Far Eastern coast of USSR. Vestnik DVF Akademii nauk SSSR, N 23, p.105-111, Russ.
181. Evseev G.A, Latypov Yu.Ya., Budin I.N. (1990). Shells in coastal area (Priboynaya Bay). In: The Distribution and Ecology of Modern and Paleo-Sea Organisms. Vladivostok, p.102-112, Russ.

# F


182. Fedotova N.A. (1974). On seasonal disposition of the composition and development of plankton at south-western Sakhalin. Izvestiya TINRO, v.95, p.73-108, Russ.
183. Fedotova N.A. (1975). On macroplankton of the Tartar Strait. Izvestiya TINRO, v.95, p.26-35, Russ.
184. Fedotova N.A. (1976). The composition and distribution of macroplankton of Tartar Strait. Trudy VNIRO, v.110, p.28-31, Russ.
185. Fedotova N.A. (1985). On cyclic changes in plankton biomass at south-western Sakhalin. Izvestiya TINRO, v.109, p.83-85, Russ.
186. Filippov V.V. (1963). On climatic divisions of the Japan Sea. Trudy NIIAK, N 20, p.3-29, Russ.
187. Firsov P.B. (1984). Statistical structure of non-periodic sea level oscillations along the coast of the Japan Sea. Trudy Gigrometcentra, N 263, p.41-52, Russ.
188. Firsov P.B. (1988). On mechanism of storm surge formation in the northern Japan Sea. Trudy DVNIGMI, N 132, p.3-21, Russ.
189. Firsov P.B. (1989). On the problem of variability of non-periodic level oscillation along the coast of the Japan Sea. Trudy DVNIGMI, N 39, p.86-97, Russ.
190. Firsov P.B. (1992). Calculation of extremal level elevation in the northern Japan Sea. Trudy DVNIGMI, N 145, p.21-38, Russ.
191. Firsov P.B. (1992). Statistical structure of wave height fields during the winter in the Japan Sea. Trudy DVNIGMI, N 145, p.39-50, Russ.
192. Fridlyand I.G. (1951). Reproduction of herring at the south-western Sakhalin. Izvestiya TINRO, v.35, p.105-145, Russ.
193. Frolov A.I. (1958). The distribution and conditions of inhabitance of lake herring in Sakhalin waters. Izvestiya TINRO, v.65, p.20-34, Russ.
194. Frolov Yu.S. (1971). New fundamental data on the World ocean morphology. Vestnik Leningrad State University, v.6, N 1, p.85-90, Russ.
195. Fujii K., Abe M., Domon K. (1976). Seasonal variation of water property on the Tsugaru Warm Current with difference to structure of the water masses of the Tsushima Current. B. Hokkaido Reg. Fish. Res. Laboratory, N 41, p.49-91, Jap.
196. Fujita T., Honda T. (1965). Observational estimation of evaporation and sensible heat transfer from the Japan Sea in winter. Tenki, v.12, N 6, p.204-213, Jap.
197. Fukataki H. (1966). Distribution, migration and population density of the saury occuring in the Japan Sea. In: Reports of the Cooperative Investigations on the Saury in the Japan Sea for 1963 and 1964, Tokyo, p.123-134, Jap.
198. Fukuoka J. (1957). On the Tsushima current. J. Oceanogr. Soc. Japan, v.13, N 2, p.57-60.
199. Fukuoka J. (1960). An analysis of the mechanism of cold and warm water masses in the seas adjacent to Japan (Part 2). Umi to sora, v.36, N 2, p.29-36, Jap.
200. Fukuoka J. (1961). An analysis of the mechanism of the cold and warm masses in the seas adjacent to Japan. Rec. Oceanogr. Works in Japan, v.6, N 1, p.63-100.
201. Fukuoka J. (1962). Characteristics of hydrography of the Japan Sea. J. Oceanogr. Soc. Japan, v.20, p.180-188, Jap.
202. Fukuoka J. (1962). An analysis of hydrographical condition along the Tsushima Warm Current in the Japan Sea. Rec. Oceanogr. Works in Japan, v.6, N 2, p.9-30.
203. Fukuoka J. (1965). The circulation in the Japan Sea. J. Oceanogr. Soc. Japan, v.21, N 3, p.95-102.
204. Fukuoka J., Misumi A. (1977). Sinking in the Japan Sea. B. Fac. Fish. Hokkaido University, v.28, N 3, p.143-153, Jap.

# G


205. Gaiko L.A., Zhabin I.A. (1996). Variation of temperature and salinity in Vostok Bay (the Japan Sea). Biologiya Morya, v.22, N 2, p.126-130, Russ.
206. Gail G.I. (1936). The distribution of phytoplankton in the upper layer of coastal waters of the north-western Japan Sea. Vestnik DVF Akademii nauk SSSR, N 18, p.81-102, Russ.
207. Gail G.I. (1963). Spring phytoplankton of south-eastern part of Tartar Strait. Trudy VNIRO, v.43, p.17-20, Russ.
208. Galerkin L.I. (1961). Non- periodic oscillations of sea surface level. In: Stepanov V.N.(ed.) Basic features of geology and hydrology of the Japan Sea. Moscow, Publ. House of USSR Academy of Sciences, p.192-216, Russ. [*Using data since 1900, the year-to-year, seasonal, and short-term oscillations of sea level are considered. The year-to-year variations are contrary on eastern and western coasts of the Japan Sea. Some periods (10-11 years, 19 years) of oscillations with a range of several centimeters were identified. Seasonal variations (30-40 cm in southern part and 10-20 cm in northern one) can be explained by monsoon changes of wind, atmospheric pressure and water density. Short-term variations are due to stormy winds and atmospheric pressure oscillations (the last is more important). Their magnitude is about 1 m and their duration- 3-4 days.*]
209. Gamo T., Horibe Y. (1983). Abyssal circulation in the Japan Sea. J.Oceanogr.Soc.Japan, v.39, N 2, p.220-230.
210. Gamo T., Nozaki Y., Sakai H., Nakai T., Tsubota H. (1986). Spatial and temporal variations of water characteristics in the Japan Sea bottom layer. J.Marine Research, v.44, N 4, p.781-793.
211. Gavrilov G.M., Pushkareva N.A. (1985). The productivity of fisheries in USSR economic zone in the Japan Sea. Izvestiya TINRO, v.110, p.3-12, Russ.
212. Geological Structure of the Western Japan Sea and Adjoining Land (1993). Vladivostok, Dalnauka, 209 pp., Russ.
213. Ablaev A.G.(ed.) Geology of the Bottom of the Japan Sea (1987). Vladivostok, Far Eastern Branch of USSR Academy of Science,137 pp., Russ.
214. Gershanovich D.E. (1951). The peculiarities of modern sedimentation in the northern Japan Sea. Meteorologiya i Gidrologiya, N 11, p.36-41, Russ.
215. Gershanovich D.E. (1953). Main conformity to natural laws of modern sedimentation in the Japan Sea. Trudy GOIN, N 13, p.3-85, Russ.
216. Glagoleva M.G., Sauskan E.M., Tyutnev Ya.A. (1957). Methods of SST forecasting at SW coast of Sakhalin. Trudy TCIP, N 57, p.98-131, Russ.
217. Gomoyunov K.A. (1926). Hydrological description of Amurskii Bay and Suifun River. Trudy DGU, ser.3, N 1, p.*, Russ.
218. Gomoyunov K.A. (1927). Hydrology of Amurskii Bay and Suifun River. Proc. Conference "Productive forces of Russian Far East area", N 2, p.73-91(. 9 figs.), Russ. [*First summer (1925) survey of Amurskii Bay (part of Peter the Great Bay). Detailed description as for Amurskii Bay as for Suifun River (main river felt into Amurskii Bay) was given (coast line, relief, grounds, level oscillations, currents, salinity, temperature, density, transparency, water color).*]
219. Gomoyunov K.A. (1927). Hydrological surveys in Peter the Great Bay in connection with general conditions of the Japan Sea. Proc. Conference "Productive forces of Russian Far East area", N 2, p.93-99 (. 2 figs.), Russ. [*Oceanographic surveys in the beginning of XX Century were reviewed. Some of the most important problems are emphasized. High salinity was shown in Peter the Great Bay.*]
220. Gomoyunov K.A. (1928). Hydrological conditions in Patrokl Bay in connection with meteorological conditions. Izvestiya TINRO, v.1, N 2, p.3-45, Russ. [*Detailed*

*measurements in Peter the Great Bay were analysed. Extremely high salinity (at the surface up to 34.63‰, at 20 m - up to 34.74‰) was found during cold season.*]
221. Gomoyunov K.A. (1932). Expedition of Far Eastern Geophysical Institute in Amur River estuary. Vestnik DVF Akademii nauk SSSR, N 1-2, p.103-104, Russ.
222. Goncharenko I.A. (1994). SST fields analyses based on AVHRR imagery during the second part of CREAMS'93 expedition. Proc. CREAMS'94 Symp., Fukuoka, p.111-114.
223. Goncharenko I.A., Federyakov V.G., Lazaryuk A.Yu., Ponomarev V.I. (1993). The processing of AVHRR data on an example of coastal upwelling. Issledovanie Zemli Iz Kosmosa, N 2, p.97-107, Russ.
224. Gong Y. (1968). On the seasonal variation of coastal surface water temperature. B. Fish.Res.Develop.Agency, N 3, p.57-79, Kor.
225. Gong Y. (1970). A study on the South Korean coastal front. Proc.Symposium "The Kuroshio-2". Tokyo, Tokyo Univ. Press, p.79-94.
226. Gong Y. (1971). A study on the South Korean coastal front. J. Oceanol.Soc. Korea, v.6, N 1, p.25-36, Kor.
227. Gong Y. (1984). Distribution and movements of Pacific saury, *Cololabis saira* (Brevoort) in relation to oceanographic conditions in waters off Korea. B. Fish. Res. Develop. Agency, v.33, p.59-172.
228. Gong Y. (1988). Distribution and abundance of the Sea of Japan- Yellow Sea- East China Sea stocks of Minke whales. B. Natl. Fish. Res. Dev. Agency, N 41, p.35-54, Kor.
229. Gong Y., Hirano T., Zhang C.I. (1983). On the migration of Pacific saury in relation to oceanographic conditions off Korea. B.Japanese Soc.Fish.Oceanography, N 44, p.51-75.
230. Gong Y., Hirano T., Zhang C.I. (1985). A study on oceanic environmental conditions for Pacific saury in Korean waters. B.Japanese Soc. Fish.Oceanography, N 47-48, p.36-58.
231. Gong Y., Kang Y.Q. (1986). Sea surface temperature anomalies off the south-eastern coast of Korea. B. Fish. Res. Develop. Agency, N 37, p.1-9.
232. Gong Y., Lee J.U., Heo J.B. (1974). Oceanographic characteristics of the saury fishing ground in the waters off the eastern coast of Korea. B. Fish. Res. Develop. Agency, N 13, p.7-37, Kor.
233. Gong Y., Park C.K. (1969). On the oceanographical character of the low temperature region in the Eastern Sea of Korea. B. Fish. Res. Develop. Agency, N 4, p.69-91, Kor.
234. Gong Y., Son S.Y. (1982). A study of oceanic thermal fronts in the south-western Japan Sea. B. Fish. Res. Develop. Agency, N 28, p.25-54.
235. Gorbunova N.N. (1951). Spawn of *Theragra* and its development (in the East Korean Bay). Izvestiya TINRO, v.34, p.89-97, Russ.
236. Gorodnichii A.E. (1949). Variations of stocks of some fishes of Primorye in connection with oceanographic conditions. Rybnoye Khozyaistvo, N 1, p.36-40, Russ.

## H

237. Hahn S.D. (1978). *OCEANOGRAPHICAL ATLAS OF KOREAN WATERS*. v.1. Temperature structure. KORDI. 293 pp., Kor.
238. Hahn S.D. (1979). Variability of physical structure in Korean Strait. Proc. 4-th CSK Symp., Tokyo, p.129-154.
239. Hahn S.D. (1980). La Perouse's voyage round the world and his survey in Korean waters. *, v.2, N 1, p.48-59, Kor.
240. Hahn S.D. (1991). Estimation of mean volume transport for Tsushima Warm Current. B. Fish. Res. Develop. Agency, N 45, p.23-29, Kor.
241. Hahn S.D. (1992). Oceanography of northern zones of Korea and their fisheries conditions. Fisheries Research, v.6, p.5-16, Kor.

242. Hahn S.D. (1992). Hydrographic observations around Korean peninsula: past, present and future. J. Oceanol. Soc. Korea, v.27, N 4, p.332-341.
243. Hahn S.D. (1994). Physical oceanography in Korea. History and perspectives. KODC Newsletter, N 23, p.39-61, Kor.
244. Hahn S.D. (1994). SST warming of Korean coastal waters during 1881-1990. KODC Newsletter, N 24, p.30-38.
245. Hahn S.D. (1995). Marine data and information managements with monitorings in Korea. KODC Newsletter, N 26, p.19-28.
246. Hahn S.D., Suh Y.S., Ahn Y.H. (1995). Variation ranges of Polar Front in the Orient Sea. Proc. Int.Symp. Remote Sensing, p.185-192.
247. Hamano S. (1976). Short-period variation of the surface temperature in the Tsugaru Strait. Umi to sora, v.51, N 2, p.55-63.
248. Han H.S., Gong Y. (1970). Relation between oceanographical condition and catch of saury in the Eastern Sea of Korea. In: Marr J.C.(ed.) The Kuroshio. A Symposium on the Japan Current. Honolulu, East-West Center Press, p.585-592.
249. Han M.S., Jang D.H., Yang H.S. (1998). The ecosystem of the southern coastal waters of the East Sea, Korea. 2.Primary productivity in and around cold water mass. J.Korean Soc.Oceanography, v.33, N *, p.196-204.
250. Han S.K., Lie H.J., Na J.Y. (1995). Temporal and spatial characteristics of surface winds over the adjacent seas of the Korean Peninsula. J.Korean Soc.Oceanography, v.30, N 6, p.550-564.
251. Han S.K., Na J.Y., Lee J.H. (1996). Numerical experiments of ocean acoustic tomography in the East Sea of Korea. J.Korean Soc.Oceanography, v.31, N 2, p.64-74.
252. Han Y. H. (1972). Heat budget over the south-western part of the Japan Sea in the month of January and cold water mass in the Korea Strait. J.Oceanol.Soc.Korea, v.7, N 1, p.19-23, Kor.
253. Hanawa K. (1984). Coastal boundary current. B.Coastal Oceanography, v.22, N 1, p.67-82, Jap.
254. Handbook on USSR climate (1970). Primorye, Sakhalin, Khabarovsk areas. Leningrad, Gidrometeoizdat, part 1-3, N 25, 26, 34, p.*, Russ.
255. Yakunin L.P.(ed.) Handbook on waves at Primorye coast (1976). Vladivostok, 62 pp., Russ.
256. Harada K., Tsunogai S. (1986). 226-Ra in the Japan Sea and the residence time of the Japan Sea water. Earth and Planet.Sci.Letters, v.77, p.236-244.
257. Hase H., Yoon J.H., Takematsu M. (1996). The measurement of the southwestward subsurface counter current off the Wakasa Bay. Proc.Fourth CREAMS Workshop, Vladivostok, p.113-117.
258. Hasegawa S. (1987). Changes in recent fishing conditions of jack mackerel in the Japan Sea. B. Japanese Soc. Fish. Oceanography, v.51, N 1, p.94-96, Jap.
259. Hata K. (1962). Seasonal variation of the volume transport in the northern part of the Japan Sea. J. Oceanogr. Soc. Japan, v.20, p.168-179, Jap.
260. Hata K. (1969). Some problems relating to fluctuations of hydrographic conditions in the sea northwest of Japan. Part 1. J. Oceanogr. Soc. Japan, v.25, N 1, p.25-35.
261. Hatekayama Y., Tanaka S., Sugimura T., Nishima T. (1985). Surface current around Hokkaido in the late fall of 1981 obtained from analysis of satellite images. J. Oceanogr. Soc. Japan, v.41, N 5, p.327-336.
262. Hatori T. (1992). Distribution of tsunami heights in the USSR and Korea for tsunamis generated in the Japan Sea. B. Earthq. Res. Institute, v.66, N 3, p.571-584, Jap.
263. Hatta M., Otani K. (1992). The Tsushima Current at west coast of Hokkaido and its branch in Tsugaru Strait. Proc. Japan Oceanogr. Society, Autumn Meeting, p.267-268, Jap.
264. Hidaka K. (1966). The Japan Sea. In: Fairbridge R.W.(ed.) The encyclopedia of oceanography. New-York, Reinhold Publ.Corp., p.417-424.

265. Hidaka K., Suzuki T. (1949). On the secular variation of Tsushima Current. The Oceanogr.Magazine, v.6, N 1, p.39-42.
266. Hidaka K., Suzuki T. (1950). Secular variations of the Tsushima Current. J.Oceanogr.Soc.Japan, v.16, N 1, p.28-31, Jap.
267. Hirai M. (1994). Evaluation of the effect of winter cooling on sea surface temperature in the spring around Tsushima current regions. B. Japan Sea Natl. Fish. Res. Institute, N 44, p.1-17, Jap.
268. Hirose K., Hong G.H., Miyao T. (1996). A preliminary study of the temperature structure in the North central Japan Sea. The Oceanogr. Magazine, v.45, N 1-2, p.1-8.
269. Hirose N., Kim C.H., Yoon J.H. (1996). Heat budget in the Japan Sea. J.Oceanography, v.52, N 5, p.553-574.
270. Hirose N., Yoon J.H. (1996). The barotropic response to the wind in the Japan Sea. Proc. Fourth CREAMS Workshop, Vladivostok, p. 39-43.
271. Hishida M. (1971). The new evidence of phosphate minimum layer of the deep water in the Japan Sea. Rep. Hydrogr. Research, N 6, p.79-84, Jap.
272. Holloway G., Sou T., Eby M. (1995). Dynamics of circulation of the Japan Sea. J. Marine Research, v.53, N 4, p.539-569.
273. Hong C.H., Cho K.D. (1983). The relationship between the characteristics of dissolved oxygen and the Tsushima current in the Japan Sea in summer. B. Korean Fish. Society, v.16, N 3, p.291-297, Kor.
274. Hong C.H., Cho K.D. (1983). The northern boundary of the Tsushima Current and its fluctuations. J. Oceanol. Soc. Korea, v.18, N 1, p.1-9.
275. Hong C.H., Cho K.D. (1997). The effect of the oceanic condition on variations of the catches of Alaska pollock in the East Sea (the Japan Sea). B. Korean Fish. Society, v.30, N 6, p.997-1004.
276. Hong C.H., Cho K.D., Yang S.K. (1984). On the abnormal cooling phenomenon in the coastal areas of East Sea of Korea in summer 1981. J. Oceanol. Soc. Korea, v.19, N 1, p.11-17.
277. Hong C.H., Yoon J.H. (1992). The effects of typhoon on the coastal sea level variation in the Tsushima Strait. Umi no Kenkyu, v.1, p.225-250, Jap.
278. Hong C.H., Yoon J.H. (1993). The response of sea levels to typhoon in the Japan Sea. B. Korean Fish. Society, v.26, N *, p.567-579.
279. Hong G.H., Kang D.J., Kim K.R., Takematsu M. (1996). A very strong movement of deep water during winter in the interior of the East Sea (Japan Sea) inferred from a time series experiment. Proc.Fourth CREAMS Workshop,Vladivostok, p.159-160.
280. Hong G.H., Kim S.H., Chung C.S., Kang D.J., Shin D.H., Lee H.J., Han S.J. (1997). 210-Pb-derived sediment accamulation rates in the south-western East Sea (Sea of Japan). Geo-Marine Letters, v.17, p.126-132.
281. Hong G.H., Park S.K., Kang D.J., Kim S.H., Chung C.S., Tkalin A.V., Lishavskaya T.S. (1996). Biogenetic particulate matter accumulation in the Peter the Great Bay, East Sea (Sea of Japan). Proc. Fourth CREAMS Workshop, Vladivostok, p.161-163.
282. Hong G.H., Park S.K., Chung C.S., Kim S.H., Tkalin A.V., Lishavskaya T.S. (1996). Biogenetic particular matter accumulation in Peter the Great Bay, East Sea (Japan Sea). J. Korean Soc. Oceanography, v.31, N 3, p.134-143.
283. Hong S., Dong H. (1970). Drift bottle experiments in the Korea Strait in 1966-1969. In: The Kuroshio-2" (Proc. 2-nd CSK Symposium), Tokyo, Tokyo Univ. Press, p.69-70.
284. Hudya V.N. (1980). On variation of navaga quantity in the northern Tartar Strait. Izvestiya TINRO, v.104, p.134-139, Russ.
285. Hue J.S. (1967). Distribution of zooplankton in the adjacent sea of East Korea in August, 1965. B. Fish. Res. Develop. Agency, N 1, p.7-62, Kor.

286. Huh O.K. (1976). Detection of oceanic thermal front off Korea with the defense meteorological satellites. Remote Sensing Of Environment, v.5, N *, p.191-213.
287. Huh O.K. (1982). Satellite observations and the annual cycle of surface circulation in the Yellow Sea, East China Sea and Korea Strait. La Mer, v.20, Sp.N, p.210-222.
288. Huh O.K., Shim T. (1987). Satellite observations of surface temperature and flow patterns, Sea of Japan and East China Sea, late March 1978. Remote Sensing Of Environment, v.22, N 3, p.379-393.
289. Hurlburt H.E., Hogan P.J., Metzger E.J., Schmitz W.J., Wallcraft A.J. (1995). Dynamics of eddy-resolving models of the Pacific Ocean and the Sea of Japan. Proc.Int.Workshop on numerical prediction of oceanic variations, p.51-57.
290. Hwang S.C., Jun H.K., Haam S.H. (1986). Note on the deep sea mooring of current meters in the East Sea in 1986. Ocean Research, v.8, p.63-74, Kor.
291. Hydrochemistry of the Japan Sea (1984). Trudy DVNIGMI, v.33, 172 pp., Russ.
292. Hydrographical charts of the Japan Sea (1986). Moscow, State Oceanogr.Institute, 45 pp.,12 maps, Russ. [*Climatic characterics of ice, air pressure, air and water temperature, salinity and density distribution were shown*.]
293. *HYDROMETEOROLOGICAL CHARTS OF THE JAPAN SEA (1947)*. Leningrad, Gydrometeoizdat, 12 pp., Russ.
294. Hydrometeorological conditions on the shelf of the Japan Sea (1984). Trudy DVNIGMI, N 35, 89 pp., Russ. [*Hydrochemical data obtained in 1950-1974 (the most numerous are oxygen data - 11907, the least are silicate- 1835) were used for drawing the charts of dissolved oxygen, phosphate, silicate, pH, alkalinity distribution on horizons 0, 10, 50, 300 m northward from 41°N in different seasons. Maximal oxygen content was observed in winter in polynya areas in Tartar Strait and in Peter the Great Bay*.]

# I

295. Ichiye T. (1954). On the distribution of oxygen and its seasonal variation in the adjacent seas of Japan. The Oceanogr. Magazine, v.6, N 1, p.41-66.
296. Ichiye T. (1982). A commentary note on the paper "On the outflow modes of the Tsugaru Warm Current" by D.M. Conlon. La Mer, v.20, Sp.N, p.125-128.
297. Ichiye T. (1982). A commentary note on "Temperature and salinity changes in the Tsushima Current" by R.L. Kolpack, La Mer, v.20, Sp.N, p.67-68.
298. Ichiye T. (1983). Two examples of meander of the Tsushima Current. La Mer, v.21, N *, p.75-83.
299. Ichiye T. (1984). A barotropic, wind-driven flow of Korean Strait and transport of the Tsushima Current. La Mer, v.22, N *, p.147-155.
300. Ichiye T. (1984). Some problems of circulation and hydrography of the Japan Sea and the Tsushima Current. In: Ichiye T.(ed.) Ocean hydrodynamics of the Japan and East China Seas. Ed. Ichiye T. Tokyo, Elsevier, p.15-54.
301. Ichiye T. (1991). Outflows from straits. In: Takano K.(ed.) Oceanography Of Asian Marginal Seas. Tokyo, Elsevier, p.223-230.
302. Ichiye T., Howard M. (1992). Meanders of the Tsushima Current. La Mer, v.30, N 3, p.95-103.
303. Ichiye T., Takano K. (1988). Mesoscale eddies in the Japan Sea. La Mer, v.26, N 2, p.69-75.
304. Iida H. (1962). On the water masses in the coastal region of the south-western Okhotsk Sea. J.Oceanogr.Soc.Japan, 20th Ann.vol., p.272-279.
305. Ikegami H., Kanamori S. (1983). Calcium- Alkalinity- Nitrate relationship in the North Pacific and the Japan Sea. J.Oceanogr.Soc.Japan, v.39, N 1, p.9-14.
306. Ikehara K. (1992). Influence of surface water circulation on the sea bottom in the southern Japan Sea. La Mer, v.30, N 3, p.105-118.

307 Ikehara K., Katayama H., Nakajima T. (1995). Mode of mud deposition on the shelf to basin area off Akita, northeast Japan Sea. Proc. 8 JECSS/PAMS Workshop, p.104-105.
308. Illinskii O.K. (1950). Tables of the weather types in the Japan Sea. Trudy TCIP, N 19, p.27-94, Russ.
309. Illinskii O.K. (1950). Some features of coastal winds of the Japan Sea. Trudy TCIP, N 19, p.126-135, Russ.
310. Illinskii O.K. (1950). Some features of fog conditions in some parts of the Japan Sea. Trudy TCIP, N 19, p.171-179, Russ.
311. Imasato N., Hashimoto E., Awaji T. (1983). Tidal exchange through a strait with two channels. Umi to Sora, v.58, N 4, p.129-140, Jap.
312. Ino H., Nishida H. (1964). On the relation between the precipitation in Hokuriku district and the heat loss of Tsushima warm current during winter. Umi to Sora, v.40, N 1, p.8-11, Jap.
313. Inoue M. (1965). On the Japan Sea condition in winter period. Umi-no kise, v.11, N 3, p.17-19, Jap.
314. Inoue M. (1974). Oceanographic characteristics in the Sea of Japan. In: Tsushima Warm Current-Ocean Structure And Fishery. Tokyo, p.27-41.
315. Inoue N., Miita T., Tawara S. (1985). Tsushima Strait. In: Coastal Oceanography of Japanese Islands. Tokyo, p.914-933, Jap.
316. Valencia M.J.(ed.) International Conference On The Sea Of Japan (1989). Honolulu, East-West Center Press, 239 pp.-
317. Isobe A. (1992). Studies on the removing tidal currents from ADCP data. J. Shimonoseki Univ. Fisheries, v.40, N 2, p.59-68, Jap.
318. Isobe A. (1994). Seasonal variability of the barotropic motion in the Tsushima-Korea Strait. J.Oceanography, v.50, N 3, p.223-238.
319. Isobe A. (1994). Seasonal variation of the vertically averaged flow by the JEBAR effect in the Tsushima Strait. J.Oceanography, v.50, N 6, p.617-634.
320. Isobe A. (1995). The influence of the bottom cold water on the seasonal variability of the Tsushima Warm Current. Cont. Shelf Research, v.15, N 7, p.763-777.
321. Isobe A. (1995). Influences of the bottom relief and stratification on the part of the Tsushima Warm Current near the Tsushima Strait. Proc. 8 JECSS/PAMS Workshop, p. 67-68.
322. Isobe A. (1996). On the path of the Tsushima Warm Current. Proc. Fourth CREAMS Workshop. Vladivostok. p.153-154.
323. Isobe A. (1997). The determinant of the volume transport distribution of the Tsushima Warm Current around the Tsushima/Korea Straits. Cont. Shelf Research, v.17, N 3, p.319-336.
324. Isobe A., Isoda Yu. (1997). Circulation in the Japan Basin, the northern part of the Japan Sea. J. Oceanography, v.53, N 4, p.373-381.
325. Isobe A.,Tawara S.,Kaneko A., Kawano M. (1994). Seasonal variability in the Tsushima Warm Current,Tsushima-Korea Strait. Continental Shelf Research, v.14, N 1, p.23-35.
326. Isoda Y. (1989). Topographic effects of the Tsushima Islands on the Tsushima Warm Current. B. Coast. Oceanography, v.27, N 1, p.76-84, Jap.
327. Isoda Y. (1989). Long-period water temperature variabilities at the upper ocean in the Japan Sea. Umi to sora, v.64, N 4, p.217-232, Jap.
328. Isoda Y. (1994). Warm eddy movements in the Eastern Japan Sea. J.Oceanography, v.50, N 1, p.1-16.
329. Isoda Y. (1994). Inter-annual SST variations to the north and south of the Polar front in the Japan Sea. La Mer, v. 32, N 4, p.285-294.
330. Isoda Y. (1997). Interannual variation of SST anomalies in the Japan/East Sea-cooling induced current. Proc. Int. Symposium "Tsushima Warm Current". Pusan, p.45-52.
331. Isoda Y., Isobe A. (1994). Report of ADCP data analyses in CREAMS'93. Proc.CREAMS'94 Symp., Fukuoka, p.4-7.

332. Isoda Y., Murakami T., Nakayama T., Ohtani K. (1996). Moored instrument observations in the Tsushima Current west of the Tsugaru Strait. Proc. Fourth CREAMS Workshop.,Vladivostok. p.119-121.
333. Isoda Y., Murayama T. (1990). Bottom cold water and flow structure of the Tsushima warm current. B. Coastal Oceanography, v.28, N 1, p.85-95, Jap.
334. Isoda Y., Murayama T. (1993). Duirnal shelf waves off Hamada on San'in coast. J.Oceanography, v.49, N 1, p.71-88.
335. Isoda Y., Murayama T., Tamai T. (1992). Variabilities of current and water temperature due to meteorological disturbances on the shelf off San'in coast. B. Coastal Oceanography, v.29, N *, p.197-205, Jap.
336. Isoda Y., Naganobu M., Watanabe H. (1992). A warm eddy above the Yamato Rise. Mem. Fac. Engineer., Ehime University, v.12, N 3, p.355-365, Jap.
337. Isoda Y., Naganobu M., Watanabe H., Nukata K. (1992). Horizontal and vertical structure of a warm eddy above the Yamato rise. Oceanogr. Research, v.1, N 4, p.141-151, Jap.
338. Isoda Y., Nishihara M. (1992). Behavior of warm eddies in the Japan Sea. Umi to Sora, v.67, N 1, p.231-243, Jap.
339. Isoda Y., Oomura H. (1992). Temporal and spatial variations in the bottom cold water on the shelf off San'in coast, Japan. La Mer, v.30, N 3, p.263-274.
340. Isoda Y., Saitoh S. (1988). Variability of the sea surface temperature obtained by statistical analysis of AVHRR imaginery- a case study of the south Japan Sea. J.Oceanogr.Soc.Japan, v.44, N 2, p.52-59.
341. Isoda Y., Saitoh S. (1993). The northward intruding eddy along the east coast of Korea. J.Oceanography, v.49, N 4, p.443-458.
342. Isoda Y., Saitoh S., Mihara M. (1991). SST structure of the Polar front in the Japan Sea. In: Takano K.(ed.) Oceanography Of Asian Marginal Seas. Tokyo, Elsevier, p.103-112.
343. Isoda Y., Saitoh S., Mihara M. (1992). Seasonal variations of SST patterns in the Japan Sea. Umi to Sora, v.68, N 3, p.113-124, Jap.-
344. Isoda Y., Yamaoka H. (1991). Flow structure of the Tsushima Warm Current passing through the Tsushima straits. B. Coastal Oceanography, v.28, p.183-194, Jap.
345. Isoda Y., Yanagi T., Lie H.J. (1991). Sea level variations with a several day period along the SE Japan Sea coast. Continental Shelf Research, v.11, N 2, p.167-182.-
346. Istoshin Yu.V. (1946). The method of the forecasting of the ice freezing in the Japan Sea and Amur River. Trudy GOIN, ser.5, N 12, p.23-36, Russ.
347. Istoshin Yu.V. (1950). Currents of the Japan Sea by drift bottles. Trudy TCIP, N 17, p.88-131, Russ. [*About 470 drift bottles collected in 1930-ies in the Japan Sea including the Tartar Strait and Peter the Great Bay are analysed. General and seasonal schemes of currents of different parts of the Japan Sea are created. A comprehensive catalogue of data of Russian bottle mail in Far-Eastern Seas for 1909-1940 (592 bottles) is added.*]
348. Istoshin Yu.V. (1950). Hydrological conditions during the 1949 spring fishing season at south-west Sakhalin coast. Trudy TCIP, N 21, p.53-64, Russ. [*Surface sea temperature near south-western Sakhalin is investigated using data obtained in March-May of 1949. Low water temperature (-1.0 - -1.8 C) is pointed out in this period in northern part of Tartar Strait and along Primorye coast.*]
349. Istoshin Yu.V. (1959). THE JAPAN SEA. Moscow, Geografizdat, 77 pp., Russ. [*A review of the history of investigation, geology, shores, climate, relief, grounds, currents, temperature and salinity distribution, ice, waves, tides, biology, and economy of the Japan Sea. Anomalous cool conditions of 1941 and 1942 are particularly considered as the cause of "sardine catastrophe".*]
350. Istoshin Yu.V. (1960). Water temperature of the Japan Sea and the possibility of its forecast. Works of USSR Oceanographic Comission, N 7, p.52-98, Russ.

351. Istoshin Yu.V. (1975). Sea Currents. Vladivostok, Far Eastern Publ.Co., 88 pp., Russ. [*Historical review of bottle mail in the Japan Sea. It was noted that Primorye Current exists near the coast only during summer and it branches in winter*.]
352. Ivankova Z.G., Koval' E.Z. (1980). The structure of population of Steller small-mouse flounder of Peter the Great Bay. Izvestiya TINRO, v.104, p.98-104, Russ.
353. Ivanov V.F., Yaroshenya R.A. (1976). The calculation of maximally possible tsunami wave for Soviet Far Eastern coast of the Japan Sea. Trudy DVNIGMI, N 62, p.138-145, Russ.
354. Ivanovskii I.I. (1927). Hydrographic investigation of Russian Far East area coast. Proc. Conference "Productive forces of Russian Far East area", N 2, p.43-48, Russ.
355. Ivashchenko E.A. (1993). On the calculation of wind waves in Amur Bay (Japan Sea). In: Geographic Studies Of Tthe Shelves Of Far Eastern Seas. Vladivostok, p.10-31, Russ.
356. Ivaschenko E.A. (1993). Water circulation in Peter the Great Bay. In: "Geographical Investigations Of Far Eastern Seas' Shelf. Vladivostok, Far Eastern State University, p.31-61, Russ. [*Results of calculations of wind currents (on typical winds) in Amurskii and Ussuriiskii Bays (small Bays just west and east of Vladivostok)*.]
357. Ivleva N.A. (1960). Distribution of zooplankton at the south-western coast of Sakhalin. Izvestiya TINRO, v.46, p.65-77, Russ.

## J

358. Jang C.J., Kim K., Shim T.B. (1995). Short-term variation of the mixed layer in the Korea Strait in autumn. J.Korean Soc. Oceanography, v.30, N 5, p.512-521, Kor.
359. Jun K.O., Park C.K. (1969). Studies on the chlorophyll in the East Sea of Korea. B. Fish. Res. Develop.Agency, N 4, p.27-43, Kor.

## K

360. Kaganovskaya S.M. (1949). Some data on distribution and biology of pollock. Izvestiya TINRO, v.29, p.179-181, Russ.
361. Kaganovskaya S.M. (1951):New information on pollock in Peter the Great Bay. Izvestiya TINRO, v.34, p.81-87, Russ.
362. Kaganovskii A.G. (1949). Some problems of biology and the change of quality of humpback salmon. Izvestiya TINRO, v.31, p.3-57, Russ.
363. Kaganovskii A.G. (1951). The migrations of scomber *(Pneumatophorus japonicus)* in the Japan Sea. Izvestiya TINRO, v.35, p.61-79, Russ.
364. Kaji T., Momoshima N., Takashima Y. (1988). Tritium concentrations of the deep sea water in the Japan Sea and the Pacific Ocean. J. Radio. Nucl. Chem. Letters, v.127, N 6, p.447-456.
365. Kajiura K., Tsuchiya M., Hidaka K. (1958). The analyses of oceanographical condition in the Japan Sea. In: Report Develop. Fish. Res. in the Tsushima Warm Current. Tokyo, Fish. Agency, v.1, p.158-170, Jap.
366. Kanari S., Koga M., Aota M. (1984). Velocity profiles and velocity structure of Soya Warm Current obtained with a free-fall electro-magnetic velocity profiler. Geophys. B., Hokkaido University, v.44, p.67-76, Jap.
367. Kaneko A., Byun S.K., Chang S.D., Takahashi M. (1991). An observation of secular velocity structures and transport of the Tsushima Current across the Korea Strait. In: Takano K.(ed.) Oceanography Of Asian Marginal Seas. Tokyo, Elsevier, p.179-195.
368. Kaneko A., Gang Y., Noriyaki G., Iwao N. (1994). Optimum design of the ocean acoustic tomography system for the Sea of Japan. J. Oceanography, v.50, N 3, p.281-293.

369. Kaneko A., Honji H., Kawatate K., Mizuno S., Masuda A., Miita T. (1986). A note on inertial wavetrains and the assosiated undulation of the sea surface observed upstream of seamounts. J. Oceanogr. Soc. Japan, v.42, N 1, p.75-82.
370. Kaneko A., Takahashi M., Hosoyamada T. (1987). A preliminary analysis of low salinity water in Tsushima Strait in summer period. Rep.RIAM, Kyushyu University, v.65, p.103-112, Jap.
371. Kaneko A.,Yuan G., Gohda N., Nakano I. (1994). Optimum design of the ocean acoustic tomography system for the Sea of Japan. J.Oceanography, v.50, N 3, p. 281-294.
372. Kang D., Na J. (1994). Comparison of the temperature profile with the backscattering strength by the ADCP data in the south-western part of the East Sea. J.Oceanol.Soc.Korea, v.29, N 3, p.287-295, Kor.
373. Kang H.E., Kang Y.Q. (1990). Spatio-temporal characteristics of the Ullung warm lens. B.Korean Fish. Society, v.23, N 5, p.407-415.
374. Kang I.S., Kim M.K., Shim T. (1994). Seasonal variation of surface heat budget and wind stress over the seas around the Korean peninsula. J.Oceanol.Soc.Korea, v.29, N 4, p.325-337.
375. Kang S.K., Lee S.R., Yum K.D. (1991). Tidal computation of the East China Sea, Yellow Sea and the East Sea. In: Takano K.(ed.) Oceanography of Asian Marginal Seas. Tokyo, Elsevier, p.25-48.
376. Kang S.W., Lee D.Y., Park K.S., Shim J.S., Oh B.C., Jun K.C., Kim S.I. (1988). Hindcast of typhoon waves at the South and the East Sea of Korea. Ocean Research, v.10, N 2, p.57-67, Kor.
377. Kang Y.Q. (1984). Influence of sea surface temperature on the annual variation of air temperature in Korea. J.Korean Meteor.Society, v.20, N 2, p.73-81.
378. Kang Y.Q. (1984). Atmospheric and oceanic factors affecting the air-sea thermal interactions in the East Sea (Japan Sea). J. Oceanol. Soc. Korea, v.19, N 2, p.163-171.
379. Kang Y.Q. (1985). Influences of the Asian monsoon and the Kuroshio on the surface temperature in the Yellow, the Japan and the East China Seas. J. Oceanol. Soc. Korea, v.20, N 2, p.1-9.
380. Kang Y.Q. (1985). Seasonal variation of heat content in the neighbouring seas of Korea. J. Oceanol. Soc. Korea, v.20, N 3, p.1-5.
381. Kang Y.Q. (1985). On the annual variations of sea surface temperature, air temperature and sea-air temperature separations in the East Sea (Japan Sea). B. Korean Fish. Society, v.18, N 4, p.374-380.
382. Kang Y.Q. (1988). On the formation of the East Korean warm current. Ocean Research, v.10, N 1, p.1-6.
383. Kang Y.Q., Choi S.W. (1985). Annual and interannual fluctuations of coastal water temperatures in the Tsushima current and the Kuroshio regions. B. Korean Fish. Society, v.18, N 6, p.497-505.
384. Kang Y.Q., Choi S.W. (1987). Objective interpolation of the M2 tide in the East Sea. B. Korean Fish. Society, v.20, N 6, p.477-483.
385. Kang Y.Q., Choi S.W. (1988). Fluctuations of coastal water temperatures along Korean and Japanese coasts in the East Sea. B. Korean Fish. Society, v.21, N 6, p.317-326.
386. Kang Y.Q., Jin M.S. (1984). Seasonal variation of surface temperatures in the neighbouring seas of Korea. J. Oceanol. Soc. Korea, v.19, N 1, p.31-35.
387. Kang Y.G., Kang H.E. (1991). Long-term fluctuations of water temperature in the upeer 200 m off the South-East coast of Korea. B. Korean Fish. Society, v.24, N 6, p.450-458.
388. Kang Y.Q., Kang O.G. (1987). Annual variation of water temperatures in the upper 200 m off southeast coast of Korea. J. Oceanol. Soc. Korea, v.22, N 2, p.71-79.
389. Kang Y.Q., Lee B.D. (1984). Year-to-year fluctuations of seasonal variation of surface temperature in the Korean Strait. B. Korean Fish. Society, v.17, N 6, p.557-565.

390. Kang Y.S., Lee S.S. (1991). Seasonal fluctuation of zooplankton biomass in the adjacent seas of Korea. B. Fish. Res. Develop. Agency, N 45, p.13-21.
391. Kano Y. (1980). The annual variation of the temperature, salinity and oxygen contents in the Japan Sea. The Oceanogr. Magazine, v.31, N 1, p.15-26.
392. Kano Y., Baba N., Ebara S. (1984). Chlorophyll-a and primary production in the Japan Sea. The Oceanogr. Magazine, v.34, N 1-2, p.31-39.
393. Kantha L. (1995). The circulation in the Sea of Japan. Observations and modeling studies. Arctic Research, v.9, p.109-112.
394. Kantha L.H., Suk M.S. (1994). A numerical model of the circulation in the East Sea. Proc. 3 CREAMS Workshop, Seoul, 6 pp.(extra pages.)-
395. Kantha L.H., Suk M.S. (1997). Numerical studies of the East Sea (Sea of Japan). Manuscript.CREAMS Workshop, Fukuoka, 37 pp.
396. Kasahara S. (1957). A study on the surface flow in the northern Japan Sea during the spring, 1955, with special reference to its bearing upon the drift of sardine eggs and larvae. Ann.Rep.Japan Sea Reg.Fish.Res.Laboratory, N 4, p.137-154, Jap.
397. Kasahara S. (1978). Description of offshore squid angling in the Sea of Japan with special reference to the description of common squid (*Todarodes pacificus* Steenstrup) and on the techniques for forecasting fishing conditions. B. Japan Sea Reg. Fish. Res. Laboratory, N 29, p.179-199.
398. Kasamatsu F., Ueda Y., Tomizawa T., Nonaka N., Nagaya Y. (1994). Preliminary report on radionucleide concentration in the bottom waters at the entrance of Wakasa Bay with special reference to the Japan Sea Proper Water. J. Oceanography, v.50, N 5, p.589-598.
399. Kaseno Y. (1969). List of publications concerning the Japan Sea region. Earth Sciences. 1. Topography, marine geology and geophysics of the Japan Sea floor. B. Japan Sea Res. Institute, N 1, p.70-80, Jap.
400. Kasunoki K., Kashima T. (1951). Ocean current variations off the western coast of Hokkaido in the Japan Sea. J. Oceanogr. Soc. Japan, v.6, N 3, p.133-142, Jap.
401. Kato K., Asai T. (1983). Seasonal variations of heat budgets in both the atmosphere and the sea in the Japan Sea area. J. Meteorol. Soc. Japan, v.61, N 2, p.222-237.
402. Katoh O. (1993). Detailed current structures over the continental shelf off the San'in coast in summer.J. Oceanography, v.49, N 1, p.1-16.
403. Katoh O. (1993). Detailed current structures in the eastern channel of the Tsushima Strait in summer. J. Oceanography, v.49, N 1, p.17-30.
404. Katoh O. (1994). Short-term fluctuations of the Tsushima Current in waters northwest of Yamaguchi prefecture. J. Oceanography, v.50, N 1, p.51-64.
405. Katoh O. (1994). Structure of the Tsushima Current in the south-western Japan Sea. J. Oceanography, v.50, N 3, p.317-338.
406. Katoh O.,Hayashi K., Hamasaki S. (1987). Sudden rise and fall of surface water temperature in spring in the southwestern coastal region of the Japan Sea. B. Seikai Reg. Fish. Res. Laboratory, N 64, p.1-12, Jap.
407. Kawabe M. (1982). Branching of the Tsushima Current in the Japan Sea. Part 1. Data analysis. J. Oceanogr. Soc. Japan, v.38, N 2, p.95-107.
408. Kawabe M. (1982). Branching of the Tsushima Current in the Japan Sea. Part 2. Numerical experiments. J. Oceanogr. Soc. Japan, v.38, N 4, p.183-192.
409. Kawabe M. (1986). Study of Kuroshio and Tsushima Current. J. Oceanogr. Soc. Japan, v.42, N 4, p.319-331, Jap.
410. Kawai H. (1974). Transition of current images in the Japan Sea. In: Tsushima Warm Current-Ocean Structure and Fishery Tokyo, Fish. Soc. Japan, p.7-26, Jap.

411. Kawai H., Nagahara M. (1973). Bottom currents on the continental shelf of the Japan Sea measured with sea-bed drifters. B. Japan Sea Reg. Fish. Res. Laboratory, N 24, p.1-19, Jap.
412. Kawamoto T. (1952). On the saturation percentage of the dissolved oxygen in the sea - on the case of the Tsushima and Liman Cold Current region in the Japan Sea. B. Japan Sea Reg.Fish.Res. Laboratory, Sp.N, p.115-123, Jap.
413. Kawamoto T. (1952). On the dissolved oxygen in the sea - on the sigma-t - oxygen diagram in the Japan Sea. B. Japan Sea Reg. Fish.Res. Laboratory, Sp.N, p.125-133, Jap.
414. Kawamura S., Hirai M. (1993). Evaluation of hydrographic conditions on the fluctuation in catches of common squid during period of northward migration in the waters around Sado Island in the Japan Sea. B.Japan Sea Nat. Fish. Res. Institute, N 43, p.83-92, Jap.
415. Kawano M. (1993). Monthly changes of velocity and volume transport of the Tsushima Warm Current in the Tsushima Strait. B.Japanese Soc. Fish. Oceanography, v.57, N 3, p.219-230, Jap.
416. Kawarada Y. (1953). On the plankton association in the Japan Sea (1). J. Oceanogr. Soc. Japan, v.9, N 2, p.95-102, Jap.
417. Kawarada Y. (1953). On the plankton association in Japan Sea and Tsugaru Straits in May, 1950. J. Oceanogr. Soc. Japan, v.9, N 2, p.103-108, Jap.
418. Kido K., Nishimura M. (1973). Regeneration of silicate of closed system. 1. The Japan Sea as a model of closed system. J. Oceanogr. Soc. Japan, v.29, N 5, p.185-192.
419. Kim B.K. (1983). Periodic and correlation analyses between water temperature and air temperature in the Korean waters. J. Oceanol. Soc. Korea, v.18, N 1, p.55-63.
420. Kim B.K. (1980). The drift bottle experiments in the southern sea between Jeju-do and Tsushima. B. Fish. Res. Develop. Agency, N 25, p.7-16, Kor.
421. Kim B.K., Yun C.A. (1986). The yearly variation and correlation analysis between surface water temperature and air temperature in the Korean waters. B. Fish. Res. Develop. Agency, N 37, p.19-33, Kor.
422. Kim B.K., Yun C.A. (1987). A study on the variation of sea surface temperature in the fisheries hatchery. B. Fish. Res. Develop. Agency, N 40, p.1-6, Kor.
423. Kim B.S. (1986). A study of the possibility of pollock winter fishing grounds spatial-temporal forecasting in the East Sea of our country. Susan Kwanak Kisul, v. 1, p.71-78, Kor.
424. Kim C.H., Choi B.H. (1986). Monthly wind stress and wind stress curl distributions in the Eastern Sea (Japan Sea). J. Korean Ass. Hydr. Sciences, v.19, p.239-248.
425. Kim C.H., Kim K. (1983). Characteristics and origin of the cold water mass along the east coast of Korea. J. Oceanol. Soc. Korea, v.18, N 1, p.73-83, Kor.
426. Kim C.H.,Lie H.J., Chu K.S. (1991). On the intermediate water in the southeastern Japan Sea. In: Takano K.(ed.) Oceanography of Asian Marginal Seas. Tokyo, Elsevier, p.129-142.
427. Kim C.H., Yoon J.H. (1994). A numerical study on the seasonal variation of the Tsushima Warm Current along the coast of Japan. Proc. Third CREAMS Symposium, Seoul. p.73-79.
428. Kim C.H., Yoon J.H. (1996). Modeling of the wind-driven circulation in the Japan Sea using a reduced gravity model. J. Oceanography, v.52, N 3, p.359-373.
429. Kim C.H.,Yoon J.H., Takematsu M. (1996). On the deep circulation simulated in the numerical model of the Japan Sea (East Sea). Proc. Fourth CREAMS Workshop, Vladivostok. p.147-152.
430. Kim G.Y., Kim D.C., Shin I.C., Park S.C., Yi H.I., Kim J.C. (1998). Late quaternary paleoceanography as recorded by planktonic foramenifera in the Ulleung Basin, East Sea. Paleoceanography, N 1-2, p.8-17.
431. Kim H.J., Cho K.D. (1982). Inversion phenomena of density in the Japan Sea. J. Oceanol. Soc. Korea, v.17, N 2, p.51-58.

432. Kim J.Y. (1992). Relationship between anchovy, *Engraulis japonica*, egg and larval density and environmental factors in the eastern waters of Korea. B. Korean Fish. Society, v.25, N 6, p.495-500.
433. Kim K. (1990). Tsushima Current and Circulation in the East Sea (Sea of Japan). KOSEF Report, N 870616, 513 pp.
434. Kim K. (1991). Deep circulation of the East Sea. Report on Summer Symposium, Seoul Nat. University, Seoul, 7 pp., Kor.
435. Kim K. (1991). Circulation in the Ulleung Basin. Proc.Symp.on the Sea between Korea and Japan. Seoul, p.27-33.
436. Kim K. (1994). The sea water circulation in the East Sea and CREAMS. Kaiyo Monthly, v.26, N 12, p.773-778, Jap.
437. Kim K., Chung J.Y. (1984). On the salinity minimum and dissolved oxygen maximum layer in the East Sea (Sea of Japan). In: Ichiye T.(ed.) Ocean Hydrodynamics of the Japan and East China Seas. Tokyo, Elsevier, p.55-65.
438. Kim K., Kim K.R., Cho Y.K., Scherbinin A., Yarosh S., Kim Y.G. (1996). Preliminary report on the CTD and chemical observations during CREAMS'95 summer expedition. Proc. Fourth CREAMS Workshop, Vladivostok, p.45-50.
439. Kim K., Kim K.R., Chung J.Y., Yoo H.S., Park S.G. (1991). Characteristics of physical properties in the Ulleung Basin. J. Oceanol. Soc. Korea, v.26, N 1, p.83-100.
440. Kim K., Kim K.R., Kim Y.G., Cho Y.K., Chung J.Y., Choi B.H., Byun S.K., Hong G.H., Takematsu M., Yoon J.H., Volkov Y., Danchenkov M.A. (1996). New finding from CREAMS observations: water masses and eddies in the East Sea. J. Korean Soc. Oceanography, v.31, N 4, p.155-163.
441. Kim K., Legeckis R. (1986). Branching of the Tsushima Current in 1981-83. Progr.Oceanography, v.17, N 3-4, p.265-276.
442. Kim K.R., Kim K. (1996). What is happening in the East Sea Japan Sea? Recent chemical observations during CREAMS 93-96. J. Korean Soc. Oceanography, v.31, N 4, p.164-172.
443. Kim K.R., Rhee T.S., Kim K., Chung J.Y. (1991). Chemical characteristics of the East Sea Intermediate water in the Ulleung Basin. J. Oceanol. Soc. Korea, v.26, N 3, p.278-290.
444. Kim K.R., Rhee T.S., Kim K. (1992). A note on initial nitrate and initial phosphate as tracers for the origin of the East Sea (Japan Sea) Proper Water. La Mer, v.30, N 3, p.149-155.
445. Kim M.S. (1958). Scomber migration in the Japan Sea. Rybnoye Khozyaistvo, N 8, p.15-21.
446. Kim S.Y., Lee J.C., Lee H.S., Shim T.B. (1997). Numerical experiment on the Ulleung eddy due to the variation of the Tsushima Current in the East Sea. J. Korean Fish. Society, v.30, N 6, p.1033-1043.
447. Kim S.Y., Lee J.C., Lee H.S., Shim T.B. (1997). Triggering effect of the Polar front on the eddies in the East Sea. J.Korean Fish.Society, v.30, N 6, p.1044-1055.
448. Kim Y.E., Chung J.Y. (1989). Numerical study of the circulation in the Japan Sea. 1. Case of closed basin. J.Oceanol.Soc.Korea, v.24, N 2, p.96-108, Kor.
449. Kim Y.G., Kim K. (1995). A study on the East Sea (Japan Sea) Intermediate Water in 1993 and 1994. Proc. 8 JECSS/PAMS Workshop, p. 92-94.
450. Kimura Y. (1980). Temperature sections and coastal water temperature in the northern Japan Sea. USSR data. J.Meteorol.Research, v.32, N 3-4, p.135-138, Jap.
451. Kirillov N.V. (1914). Investigation of a climate of Primorye area. Vladivostok, Dalekaya Okraina, 264 pp., Russ.
452. Kisilev I.A. (1934). Seasonal variations of phytoplankton of Patrokl Bay of the Japan Sea. B.Pacific Committee, USSR Academy of Sciences, N 3, p.45-48, Russ.
453. Kiselev I.A. (1959). Qualitative and quantitative composition of phytoplankton and its distribution in waters of southern Sakhalin and southern Kuril islands. In: Investigations of Far Eastern Seas of USSR, N 6, p.58-776.

454. Kitade Y., Naganobu M., Matsuyama M. (1993). Fluctuations of inertial period over the Yamato Rise. J. Tokyo Univ. Fisheries, v.80, N 1, p.49-60, Jap.-
455. Kitani K. (1987). Direct measurements of the Japan Sea Proper Water. News of the Japan Sea Nat.Fish.Res.Institute, v.341, p.1-6, Jap.
456. Kitani K. (1989). Movement of the Japan Sea Proper Water. Report on Int.Conf.on the Seas of Japan and Okhotsk. Manuscript. Nakhodka, 5 pp.
457. Kitani K., Nagata H. (1991). Ecological aspects of larval benthic fish and marine environment in the Japan Sea. B. Japanese Soc. Fish. Oceanography, v.55, N 3, p.225-231, Jap.
458. Kitani K., Uda M. (1969). Variability of the deep cold water in the Japan Sea- particularly on the abnormal cooling in 1963. J. Oceanogr. Soc. Japan, v.25, N 1, p.10-20.
459. Klimov S.M. (1981). Distribution of a similarity parameter in Tartar Strait. Trudy DVNIGMI, N 83, p.24-28, Russ.
460. Klimov S.M. (1986). An estimation of large-scale surface water temperature variability in the Tsushima Current area. Trudy DVNIGMI, N 125, p.3-7, Russ. [*Data of hydrometeorological stations Kholmsk (Maoka) and Nevelsk (Honto) obtained in 1914-1980 were processed by spectral analysis. These stations represent the condition of Tsushima Current branch along Sakhalin coast. Periods of 1.8 and 5.5 years dominate in temperature variability. These periods correspond to long-term periodicity of variation of Kuroshio intensity.*]
461. Kojima S. (1955). A study of dorado fishing condition in the western part of the Japan Sea. B. Japanese Soc. Sci. Fisheries, v.20, N 12, p.1044-1049, Jap.
462. Kolchak A.V. (1899). Observations of surface temperature and density of sea water aboard ships "Ryurik" and "Kreiser" from May 1897 to March 1898. Zapiski po gydrographii, v.20, p.*, Russ. [*Results of SST measurements and observations of vessel drifts during cruises of Russian vessels near Korean Peninsula are discussed. Isolated cold areas were found near east coast of Korea and around small islands. Scheme of surface water circulation in the western part of the Japan Sea (warm current offshore and cold current ashore) was proposed.*]
463. Kolpack R.L. (1982). Temperature and salinity changes in the Tsushima Current. La Mer, v.20, Sp.N, p.199-209.
464. Kondo T., Ostrovskii A., Umatani S. (1994). Climatologies of the surface fluxes over the Japan Sea. Proc. CREAMS'94 Symp., Fukuoka, p.29-42.
465. Kondyrev N.V. (1934). Analyses of water samples of the Japan Sea. B.Pacific Committee, USSR Academy of Sciences, N 3, p.9-16, Russ.
466. Kongiser P.A. (1932). Some data on phosphate concentration in waters of the Japan Sea. Izvestiya GOIN, N 52, p.67-69, Russ.
467. Kono T., Inoue N. (1987). Variation characteristics of surface temperature at coastal hydrographic stations around Hokkaido. B. Hokkaido Reg. Fish. Res. Laboratory, N 51, p.61-74, Jap.
468. Konovalov B.V., Tyapkin V.S., Rutkovskaya V.A., Shaposhnikova M.G., Kadoshnikov S.I. (1980). Primary production and ecologic-physiologic characteristics of phytoplankton of the Japan Sea and adjacent areas of Pacific Ocean in May-July of 1976. In: Investigations of the Japan Sea Plankton. Moscow, P.P.Shirshov Institute Oceanology, USSR Academy of Sciences, p.29-40, Russ.
469. Konovalov B.V., Zernova V.V., Shaposhnikova M.G. (1980). Connection between composition of pigment and quantity of phytoplankton in the Japan Sea and adjacent areas of Pacific Ocean. In: Investigations of the Japan Sea Plankton. Moscow, P.P.Shirshov Institute Oceanology, USSR Academy of Sciences, p.41-45, Russ.

470. Koryakova M.D. (1987). Hydrochemical and hydrological characteristics of Peter the Great Bay waters. Trudy DVNIGMI, N 36, p.59-67, Russ. [*Observation of high salinity (35.6 ‰) in winter in a bay near Vladivostok*.]
471. Kos M.S. (1969). The reduction of heat-loving elements in plankton of Possiet Bay (the Japan Sea). Doklady Akademii nauk SSSR, v.184, N 4, p.951-954, Russ.
472. Koshimizu N. (1959). The properties of water masses in the district of the Japan Sea. J.Oceanogr.Soc.Japan, v.14, N 3, p.99-102.
473. Koterayama W., Yamaguchi S. (1996). Space Continuous Measurement of Physical and Chemical Properties in Japan Sea with "Flying Fish". Proc.Fourth CREAMS Workshop. Vladivostok, p.107-112.
474. Kozak L.P. (1975). Distribution of foraminifera in surface part of sediments in the Sea of Japan. Okeanologiya, v.15, N 5, p.857-861, Russ.
475. Kozlov B.M. (1959). The biology and fishery of navaga in the northern Tartar Strait. Izvestiya TINRO, v.47, p.118-144, Russ.
476. Kozlov B.M. (1968). The biology and fishery of herring in northern Tartar Strait. Izvestiya TINRO, v.65, p.3-11, Russ.
477. Kozlov B.M., Shelegova E.K. (1961). The conditions influencing on fishery in the northern Tartar Strait. Rybnoye Khozyaistvo, N 7, p.9-11, Russ. [*The optimum characteristics of water for the spring fattening of navaga (temperature:-1.7-1.5°C, salinity: less than 32 ‰) and herring (temperature less 4°C) to south-western Sakhalin on the data of 1955 are specified. The autumn approach of herring on the data of September, 1951 with temperature of surface waters 6-12°C. With a downturn of temperature less than 3°C, the herring has left area of the fishing*.]
478. Kozlov V.F. (1974). The results of approximate calculation of the integral circulation in the Japan Sea. Meteorologiya i Gydrologiya, N 4, p.57-63, Russ. [*A one-parameter circulation model using sea surface density distribution, atmospheric pressure distribution, and flows through channels. Approximate vertically integrated currents were calculated for four seasons. As a result, the Primorye Current is absent in summer. The influences of bottom topography, advection through channels, beta-effect, baroclinity and seasonality on currents are discussed*.]
479. Kozlov V.F., Makarov V.G. (1995). Background currents in the Japan Sea. Okeanologiya, v.35, N 5, p.658-662, Russ.
480. Kozlov V.F., Makarov V.G., Ryabov O.N., Yarichin V.G. (1995). Zones of convergence and divergence of deep currents in the Japan Sea and its connection with bottom relief. Meteorologiya i Gidrologiya, N 8, p.58-62, Russ.
481. Kraft A.E. (1947). Water levelling of tide-gauges of the Japan Sea. Trudy GOIN, N 2, p.3-26, Russ.
482. Kryndin A.N. (1961). Ice. In: Stepanov V.N.(ed.) General Features of Geology and Hydrology of the Japan Sea. Moscow, USSR Academy of Sciences Publishing House, p.183-191, Russ. [*Dates of freezing and distribution of ice are considered. The mean ice cover of the Sea during December-April is about 31.000 sq.km (range 84.000 - 52.000 sq.km). Ice never covers more than 10% of the Sea area. Usually ice cover has sharp changes in January-Feburary. It also has significant year-to-year variations: the most icy winters (with total ice square more than 47.000 sq.km) were 1929/30, 1930/31, 1942/43, 1945/46, 1950/51, 1952/53, 1953/54. The lowest icy winters (with the square less than 41.000 sq.km) were 1931/32, 1933/34, 1938/39, 1948/49*.]
483. Kubokawa A. (1989). A theory on the behavior of outflows and its possible application to the Tsugaru Warm Current. Umi to Sora, v.65, N 2, p.95-106, Jap.
484. Kubota M. (1990). Variability of the Polar front in the Japan Sea. B.Air.Sat.Phys.Fish. Oceanography, N 12, p.35-44, Jap.

485. Kulinichenko M.N. (1992). Modelling of anemobaric oscillations of the sea level in the Japan Sea. In: Oscillations and Waves in Solid Environments: Analytic and Numerical Methods, Nizhny-Novgorod, p.104-111, Russ.
486. Kun M.S. (1949). Nutrition of Pacific herring in the northern part of Tartar Strait. Izvestiya TINRO, v.29, p.107-138, Russ.
487. Kun M.S. (1951). Nutrition of scomber in the Japan Sea in 1948-1949. Izvestiya TINRO, v.34, p.67-79, Russ.
488. Kun M.S. (1969). Geographical variability of some species of *Calanus* in the Japan Sea. Zoological Journal, v.48, N 7, p.995, Russ.
489. Kun M.S. (1975). Zooplankton of Far Eastern Seas. Moscow. Pischeprom Publ. House. 148 pp., Russ.
490. Kun M.S. (1990). Food interrelations of plankton eating fishes in the Japan Sea and the influence of their competition on separate populations. Izvestiya TINRO, v.111, p.153-161, Russ.
491. Kun M.S., Mescheryakova I.M. (1954). The distribution of zooplankton types in the Japan Sea. Izvestiya TINRO, v.39, p.358-360, Russ.
492. Kuroda Y. (1992). The convergent cloud band and shipwreck in the Japan Sea. Umi to sora, N 67, p.261-279, Jap.
493. Kurooka H. (1957). Modification of Siberian air mass caused by flowing out over the open sea surface of northern Japan. J. Meteorol. Soc. Japan, v.35, p.52-59.
494. Kusmorskaya A.P. (1945). On peculiarities of plankton development in the NW Japan Sea before fishing season 1941. Rybnoye khozyaistvo, N 1, p.14-19, Russ.
495. Kusmorskaya A.P. (1948). The influence of sardine on plankton biomass distribution in the Japan Sea. Doklady Akademii nauk SSSR, v.60, N 6, p.1057-1060, Russ.
496. Kusmorskaya A.P. (1949). On the spring plankton of north-western part of the Japan Sea. Izvestiya Akademii nauk SSSR, ser. Biology, N 3, p.375-380, Russ.
497. Kusmorskaya A.P. (1950). The composition and distribution of zooplankton in the NW Japan Sea in first part of summer 1941. Trudy Geogr. Obschestva, v.2, p.253-280, Russ.
498. Kusunoki K., Kashima T. (1951). Ocean current variations off the western coast of Hokkaido in the Japan Sea. B. Low Temper. Sci. Inst., Hokkaido University, N 7, p.134-142, Jap.
499. Kuwahara A., Sakano Y. (1980). On the relationship between high salinity water and fishing conditions in the sea off Kyoto prefecture. B. Jap. Soc. Fish.Oceanography, v.36, p.27-32, Jap.
500. Kuwahara A., Washio K., Suzuki S. (1983). The movements of the high salinity water and low salinity water in the surface waters of the Tsushima Warm Current region. B. Kyoto Ocean. Fish. Science, v.7, p.41-47, Jap.
501. Kwon N.Y., Park S.J. (1970). A study of submarine topography and characteristic of bottom sediment in the central part of the Eastern Sea of Korea. B. Fish. Res. Develop. Agency, N 5, p.103-125, Kor.

# L

502. Lapshina V.I., Muravieva O.E., Stepanenko I.G. (1990). Seasonal and interannual variations of net plankton quantity in economic zones of USSR and KPDR in the Japan Sea. Izvestiya TINRO, v.111, p.133-145, Russ.
503. Lapshina V.I., Rachkov V.I. (1991). Oceanographical conditions of the bioproductivity in waters of Soviet economic zone in winter-spring period. Abstracts of USSR conference "Rational use of bioresources of Pacific Ocean".Vladivostok, TINRO, p.47-48, Russ.
504. Larina N.I. (1968). Calculation of areas of the Pacific Ocean, its seas and some basins. Okeanologiya, v.7, N 4, p.646-658, Russ. [*Area of the Japan Sea was defined as*

*1,062,746 km$^2$, maximal depth-3,669 m, average depth-1,600 v, volume of waters-1,700,400 km$^3$.*]

505. Lastovetskii E.I., Vescheva V.M. (1964). Hydrometeorological description of the Amur and Ussuri Bays (Peter the Great Bay). Vladivostok, FERHRI, 264 pp., Russ.
506. Lastovetskii E.I., Yakunin L.P. (1981). Hydrometeorological characteristics of Far Eastern sea reservation. In: Flowering Plants of Far Eastern Marine Reservation. Vladivostok, Far Eastern Branch of USSR Academy of Sciences, p.18-33, Russ.
507. Lato K., Asai T. (1983). Seasonal variations of heat budget in both atmosphere and sea in the Japan Sea area. J. Meteorol. Soc. Japan, v.61, N 3, p.222-238, Jap.
508. La Violette P.E., Hamilton D.R. (1967). Temperature, salinity and density of the world seas. Sea of Japan. Naval Oceanogr.Office. Intern. Rep. N 68-1, 110 pp.
509. Lee C.B., Park Y.A., Choi J.Y., Kim G.B. (1989). Surface sediments of the continental shelf and slope off the southeastern coast of Korea. J. Oceanol. Soc. Korea, v.24, N 1, p.39-51.
510. Lee C.K. (1970). On the currents in the western channel of the Korea Strait. B. Fish. Res. Develop. Agency, N 6, p.175-231, Kor.
511. Lee C.K. (1974). A study on the currents in the western channel of the Korea Strait. B. Fish. Res. Develop. Agency, N 12, p.37-105, Kor.
512. Lee C.K., Bong L.N. (1968). On the current of the Korean Eastern Sea (west of the Japan Sea). B. Fish. Res. Develop. Agency, N 3, p.7-26, Kor.
513. Lee C.K., Bong J.H. (1969). A study on the surface current of the southern sea of Korea by drift bottle experiments. B. Fish. Res. Develop. Agency, N 4, p.45-58, Kor.
514. Lee D.K., Lee J.C., Lee S.R., Lie H.J. (1997). A circulation study of the East Sea using satellite-tracked drifters. 1. Tsushima Current. J. Korean Fish. Society, v.30, N 6, p.1021-1032.
515. Lee D.K., Lee J.C., Lie H.J. (1997). The seasonal variation of the Tsushima Warm Current as measured by satellite tracked drifters. Proc. Int. Symposium "Tsushima Warm Current". Pusan, p.105-113.
516. Lee H.C., Yoon J.H., Takematsu M. (1996). A numerical study on the formation process of the Tsushima Warm Current in the East China Sea. Proc. Fourth CREAMS Workshop, Vladivostok, p.155-158.
517. Lee J.C. (1983). Variation of sea level and sea surface temperature associated with wind-induced upwelling in the southeast coast of Korea in summer. J. Oceanol. Soc. Korea, v.18, N 2, p.149-160.
518. Lee J.C., Cho K.D., Kim S.Y., Kim H.K., Shim T.B. (1991). Variability of sea levels associated with the Tsushima Current in the Korea Strait. B. Korean Fish. Society, v.24, N 6, p.437-449.
519. Lee J.C., Chung C.H. (1977). An estimation of average current velocity in the western channel of the Korea Strait from mean sea level data. J. Oceanol. Soc. Korea, v.12, N 2, p.67-74.
520. Lee J.C., Chung W. (1981). On the seasonal variations of surface current in the Eastern Sea of Korea. J. Oceanol. Soc. Korea, v.16, N 1, p.1-11.
521. Lee J.C., Kim S.Y. (1991). Variability of sea levels at Mukho and Ulleung-do off the east coast of Korea. B. Korean Fish. Society, v.24, N 6, p.413-427.
522. Lee J.C., Lee S.R., Byun S.K., Park M.J., Kim J.C., Yoon H.J. (1997). Variability of current and sea level in the western channel of the Korea Strait in winter 1995-1996. Proc.Int.Symposium "Tsushima Warm Current", Pusan, p.65-79.
523. Lee J.C., Min D.H., Yu H.S., Lee H.S., Yang H.S. (1995). Structure of a warm eddy off Sogcho in May 1992. J. Korean Fish. Society, v.28, N 3, p.354-363.
524. Lee J.C., Na J.Y. (1985). Structure of upwelling off the southeast coast of Korea. J. Oceanol. Soc. Korea, v.20, N 3, p.6-19.

525. Lee J.C., Na J.Y., Chang S.D. (1984). Thermohaline structure of the shelf front in the Korea Strait in early winter. J. Oceanol. Soc. Korea, v.19, N 1, p.56-67.
526. Lee J.H., Chung J.Y. (1982). Continental shelf waves off the eastern coast of Korea. La Mer, v.20, Sp. N, p.169-180.
527. Lee J.K., Oh I.S. (1994). A study of storm surges of the seas in North Eastern Asia. 1. Analyses of yearly maximum surge. J. Oceanol. Soc. Korea, v.29, N 1, p.25-41, Kor.
528. Lee K.B. (1978). Study on the coastal cold water near Ulsan. J. Oceanol. Soc. Korea, v.13, N 2, p.5-10, Kor.
529. Lee S.W. (1992). Oceanology (of areas) around Korea. Seoul, Gipmudang, 334 pp., Kor.
530. Lee T.S., Chung J.Y., Oh I.S. (1993). A note on the geostrophic velocity estimation from AVHRR images and its application. J. Korean Soc. Remote Sensing, v.9, N 1, p.79-93.
531. Lee W.H., Shim J.H. (1990). Distribution of phytoplankton standing crop and the assosiated T-S properties in the south-western East Sea (Sea of Japan). J. Oceanol. Soc. Korea, v.25, N 1, p.1-7.
532. Lee W.J.,Cho K.D., Choo H.S. (1984). Chemical characteristics of water types in the Korean Strait. B. Korean Fish. Society, v.17, N 3, p.219-229, Kor.
533. Leonov A.K. (1935). Hydrological works of expeditions of the State Hydrological Institute in the Okhotsk and Japan Seas in 1933. Izvestiya GOIN, N 69, p.35-45, Russ.
534. Leonov A.K. (1948). Water masses of the Japan Sea. Meteorologiya i Gidrologiya, N 6, p.61-78, Russ.
535. Leonov A.K. (1950). The use of the Bjerkness circulation theory for determination of water balance of the Japan Sea. In: Collected Papers Devoted to Memory of Yu.M. Shokalskii, part 2. Moscow, USSR Academy of Sciences, p.18-27, Russ.
536. Leonov A.K. (1958). On the peculiarities of thermal structure and the currents of the Japan Sea. Trudy Geographicheskogo Obschestva, v.90, N 3, p.244-264, Russ.
537. Leonov A.K. (1958). On currents in the Japan Sea in summer. Vestnik LGU, N 18, p.125-142, Russ. [*Themes of geostrophic currents from Japanese data (June 1932) in area between 35°N and 46°N and TINRO (July 1933) data (in the Tartar Strait) are presented. But it is not clear where the zero surface is placed*.]
538. Leonov A.K. (1960). The Japan Sea. In: Regional Oceanography. Part 1. Leningrad, Gydrometeoizdat, p.291-463., Russ. [*Comprehensive investigation of the Japan Sea (relief, water structure, tides, temperature and salinity distribution, ice. This book is one of 3 main Russian publications devoted to the Japan Sea and despite its age, it has not lost its importance*.]
539. Li C.U. (1986). On the investigation of pollock migration in the East Sea of our country. Susak Kwanak Kisul, v.1, p.17-24, Kor.
540. Li R., Zeng Q., Gun D. (1992). Numerical simulation for a northeastward flowing current from area off the eastern Hainan Island to Tsuruga/Soya Strait. La Mer, v.30, N 3, p.239-250.
541. Lie H.J. (1984). Coastal current and its variation along the East Sea of Korea. In: Ocean Hydrodynamics of the Japan and East China Seas. Ed. Ichiye T. Tokyo, Elsevier, p.399-408.
542. Lie H.J. (1988). Near inertial current oscillations off the mideast coast of Korea. Progr. Oceanography, v.21, N 3-4, p.241-253.
543. Lie H.J., Byun S.K. (1985). Summertime southward current along the east coast of Korea. J. Oceanol. Soc. Korea, v.20, N 2, p.22-27.
544. Lie H.J., Byun S.K., Bang I., Cho C.H. (1995). Physical structure of eddies in the south-western East Sea. J. Korean Soc. Oceanography, v.30, N 3, p.170-183.
545. Lie H.J., Cho C.H., Beardsley R.C., Shin H.R. (1994). Structure of the surface circulation of the East Sea by ARGOS surface drifters. Kaiyo Monthly, v.26, p.767-772, Jap.

546. Lie H.J., Seung Y.H. (1994). A review on status and development of physical oceanography research in Korea. J. Oceanol. Soc. Korea, v.29, N 1, p.64-81, Kor.
547. Lie H.J., Shin C.W., Seung Y.H. (1992). Internal tidal oscillations of temperature off Jukbyun on the east coast of Korea. J. Oceanol. Soc. Korea, v.27, N 3, p.228-236, Kor.
548. Lie H.M., Suk S., Kim C.H. (1989). Observations of southeast-ward deep current off the east coast of Korea. J. Oceanol. Soc. Korea, v.24, N 2, p.63-68.
549. Lim C.H., An H.S. (1985). The comparison of the volume transport in the Korea Strait and in the middle of the East Sea (Japan Sea). J. Oceanol. Soc. Korea, v.20, N 1, p.50-55.
550. Lim D.B. (1971). On the origin of the Tsushima Current water. J. Oceanol. Soc. Korea, v.6, N 2, p.85-91.
551. Lim D.B. (1973). The movement of the cold water in the Korea Strait. J. Oceanol. Soc. Korea, v.8, N 1, p.46-52.
552. Lim D.B. (1976). The movements of the waters off the south coast of Korea. J. Oceanol. Soc. Korea, v.11, N 2, p.77-88.
553. Lim D.B., Chang S.D. (1969). On the cold water mass in the Korea Strait. J. Oceanol. Soc. Korea, v.4, N 2, p.71-82.
554. Lim K.B. (1972). On the study of monthly variation of surface water temperature and its annual mean condition in the coast of Korea. B. Fish. Res. Develop. Agency, N 9, p.29-45, Kor.
555. Lim K.S., Kim K. (1995). A numerical study on the interaction of Ulleung warm eddy with topography and lateral boundary. J. Korean Soc. Oceanography, v.30, N 6, p.565-583.
556. Lindberg G.U. (1954). Works of Kuril-Sakhalin cooperative expedition in 1947-1949. In: Works of Kuril-Sakhalin Cooperative Expedition of ZIN and TINRO". Moscow, USSR Academy of Sciences, v.1, p.7-100, Russ.
557. Lindberg G.U. (1954). Relief of area between Sakhalin and southern Kuril islands. In: Works of Kuril-Sakhalin Cooperative Expedition of ZIN and TINRO. Moscow, USSR Academy of Sciences, v. 1, p.101-126, Russ.
558. Lisitzin E. (1970). Sea level variation in the Sea of Japan. International Hydrographic Review, v.44, N 2, p.11-22.
559. Lobanov V., Nikitin A., Danchenkov M. (1997). Observation of mesoscale eddies in the north-western Japan/East Sea. Abstracts of Conference on Oceanography of the East Sea, Pusan, p.12.
560. Lobanova N.I. (1988). Calculation of the salinity distribution in the Amur estuary based on the Amur river outflow. Trudy DVNIGMI, N *, p.124-128, Russ.
561. Lobanova N.I., Ryabchikova T.N. (1991). Dynamics of water, salt and heat exchange between the Okhotsk and Japan Seas through Tartar Strait. In: Dynamics of Currents and Litodynamical Processes in Rivers, Water Reservoirs and Marginal Seas. Moscow, p.200-211, Russ.
562. Luchin V.A., Rykov N.A., Varlamov S.M. (1997). Variability of the lower boundary of the winter convection in the Japan Sea. Proc. Int.CREAMS Symposium, Fukuoka, p.297-302.
563. Ludwig W.J., Murauchi S., Houtz R.E. (1975). Sediments and structure of the Japan Sea. B. Geological Soc. America, v.86, N *, p.651-664.

# M

564. Maidel E.R. (1876). Hydrographic works in Amur Bay, in the Japan Sea, in Tartar Strait and investigation of currents in La Perouse Strait. Morskoi sbornik, N *, p.*, Russ.
565. Maidel E.R. (1877). Magnetic and hydrological works in the Eastern Ocean. Morskoi sbornik, N 10, 24 pp., Russ.

566. Maidel E.R. (1878). Hydrographic works in Amur Bay, at the coasts of the Japan Sea, Tartar Strait and the investigation of the currents in La Perouse Strait. Morskoi sbornik, N 1, p.*, Russ.
567. Maidel E.R. (1879). Extra notes on the cold current in La Perouse Strait. Morskoi sbornik, v.171, N 4, p.47-53, Russ.
568. Maidel E.R. (1880). Spots of cold waters in the La Perouse Strait. Morskoi sbornik, v.180, N 2, p.*, Russ.
569. Maidel E.R. (1889). Notes on hydrography and meteorology of the Pacific Ocean. Morskoi sbornik, N 2, p.113-144, Russ.
570. Maidel E.R. (1889). * Zapiski po gydrographii, N 20, p.*., Russ.
571. Main Features of Bottom Geological Structure of the Japan Sea (1978). Moscow, Nauka, 264 pp., Russ.
572. Main Features of Geological Structure of the Bottom of the Japan Sea (1980). Moscow, Nauka, 125 pp., Russ.
573. Main Features of Hydrochemistry of the Peter the Great Bay (Japan Sea) (1989). Vladivostok, FERHRI, 201 pp., Russ.
574. Makarov S.O. (1894). “Vityaz" and Pacific Ocean. Sankt-Petersburg, v.1, 337 pp.;v.2. 511 pp., Russ. [*Water structure and currents in La Perouse and Tsugaru Straits are investigated. The charts of the Japan Sea surface water temperature and surface specific weight of water in August are proposed. Secular variation of water temperature in Tsushima, Tsugaru and La Perouse Straits and in the points near Asian coast on the same latitudes are considered. Terms of ice-covering are calculated for some points. Phenomena of cold water areas near the southern Hokkaido, near Krilion Cape and in the middle of LaPerouse Strait are discovered and discussed. Underwater canyon is found in Peter the Great Bay and dense cold bottom water sinking in winter is proposed as its nature*.]
575. Makarov S.O. (1905). Hydrological investigations of 1895 and 1896 made in La Perouse Strait and in other places. Zapiski Russkoi Akademii nauk, v.8, ser.16, N 9, p.*, Russ.
576. Mamayev O.I. (1979). On the structure of the Japan Sea waters, further results. Proc.4-th CSK Symp., Tokyo, p.51-66.
577. Manabe S. (1957). On the modification of air mass over the Japan Sea when the outbreak of cold air predominates. J. Meteorol. Soc. Japan, v.35, N 6, p.311-325.
578. Manabe S. (1958). On the estimation of energy exchange between the Japan Sea and the atmosphere during winter based upon the energy budget of both the atmosphere and the sea. J. Meteorol. Soc. Japan, v.36, N 4, p.123-134.
579. *MARINE ENVIRONMENTAL ATLAS (1975):*Tokyo, Jap.Hydrogr.Ass.,164 pp.
580. *MARINE ENVIRONMENTAL ATLAS (1978):*Tokyo, Jap.Hydrogr.Ass.,157 pp.
581. *MARINE ENVIRONMENTAL ATLAS OF KOREAN WATERS (1982):* Seoul, Hydr.Office, Publ. N 1451, 41 pp.
582. Marine Meteorological Study of the Japan Sea (1972). Tokyo, Japan Met.Agency, N 80, 116 pp.
583. Markina N.P., Tcherniavsky V.I. (1985). Quantitative distribution of phyto-, zooplankton and conditions of formation of productive zones in the Japan Sea. Izvestiya TINRO, v.110, p.129-138, Russ.
584. Martin S., Kawase M. (1998). The southern flux of sea ice in the Tatarskiy Strait, Japan Sea and the generation of the Liman Current. J. Marine Research, v.56, N 1, p.141-155.
585. Martin S., Munoz E., Drucker R. (1992). The effect of severe storms on the ice cover of the northern Tatarskiy Strait. J. Geophys. Research, v.97, N 11, p.17753-17769.
586. Martin S., Wakatsuchi M., Ono N. (1995). Ice and Ocean Processes in Tatarskiy Strait, the Japan Sea, as revealed by ERS-1 SAR. Int. J. Remote Sensing, v.16, N 17, p.3227-3243.
587. Marukawa H. (1919). Investigation of waters and fishery areas in the Okhotsk and Japan Seas. Works of Tokyo Fisheries Institute, v.7, N *, p.11-46, Jap.

588. Marukawa H. (1928). On the plankton of the Japan Sea. Annot. Oceanogr. Research, v.2, N 1, p.14-16, Jap.
589. Marukawa H., Kamiya T. (1926). Outline of the hydrographical features of the Japan Sea. Annot.Oceanogr.Research, Imp.Fish.Institute, v.1, N 1, p.1-7, Jap.
590. Masuzawa T., Noriki S., Kurosaki T., Tsunogai S., Koyama M. (1989). Compositional change of settling particles with water depth in the Japan Sea. Marine Chemistry, v.27, N 1-2, p.61-78.
591. Matinyan G.B. (1950). Fog and storms of the Japan Sea. Trudy TCIP, N 19, p.110-125, Russ.
592. Matinyan G.B. (1950). The description of fog in the Peter the Great Bay. Trudy TCIP, N 19, p.136-170, Russ.
593. Matsue Y., Komaki Y., Murano M. (1957). On distribution of minute nutrients in the north Japan Sea. B. Japan Sea Reg. Fish. Res. Laboratory, N 6, p.121-128, Jap.
594. Matsumoto S. (1967). Budget analyses on the sea effect snow observed along the Japan Sea coastal area. J. Meteorol. Soc. Japan, v.45, N 1, p.53-63.
595. Matsumoto S., Asai T., Ninomiya K. (1963). Heat and water vapor budget in large and small scale in winter over the middle of the Japan islands. Papers in Meteorol. Geophysics, v.14, N 2, p.67-81.
596. Matsumoto S., Ninomiya K. (1966). Some aspects of the cloud formation and its relation to the heat and moisture supply from the Japan Sea surface under a weak winter monsoon situation. J. Meteorol. Soc. Japan, v.44, N 1, p.60-75.
597. Matsuyama M. (1973). The warm water region in the Japan Sea off the Korean peninsula. B. Japanese Soc. Fish. Oceanography, v.21, p.1-4.
598. Matsuyama M. (1990). The structure of the near-shore branch of the Tsushima Current on the shelf off San'in coast in summer. J. Oceanogr. Soc. Japan, v.46, N 4, p.156-166.
599. Matsuyama M., Kurita Y., Yoshida J., Inoue K., Kasuga I., Takeda S. (1988). An observation of the warm eddy eastward of Oki Islands in the Japan Sea. J. Tokyo Univ. Fisheries, v.75, N 2, p.247-255, Jap.
600. Matsuyama M., Kurita Y., Senjyu T., Koike Y., Hayashi T. (1990). The warm eddy observed east of Oki Islands in the Japan Sea. Umi to Sora, v.66, N 2, p.67-75, Jap.
601. Matsuyama Y., Nazumi T. (1986). Characteristics of the current on the continental shelf off the Tajima coast in winter. B. Japanese Soc. Sci. Fisheries, v.52, N 10, p.1715-1718, Jap.
602. *MEAN OCEANOGRAPHICAL CHARTS OF THE ADJACENT SEAS OF KOREA* (1986). Pusan, Fish. Res. Develop. Agency, 106 pp.
603. Medvedev V.S. (1961). Coasts of the Japan Sea. In: Basic Features of Geology and Hydrology of the Japan Sea. Moscow, USSR Academy of Sciences, p.35-101, Russ.
604. Melnichenko Yu.I. (1993). Bottom relief and geomorphotectonics (of the western part of the Japan Sea). In: Geological Structure of the Western Japan Sea. Vladivostok, Dalnauka, p.6-25, Russ.
605. Mescheryakova I.M. (1949). Notes on plankton of the Japan Sea. Izvestiya TINRO, v.31, p.*, Russ.
606. Mescheryakova I.M. (1951). New information about zooplankton of the Japan Sea. Izvestiya TINRO, v.34, p.267-269, Russ.
607. Mescheryakova I.M. (1954). Winter plankton of the central part of the Japan Sea. Izvestiya TINRO, v.39, p.83-96, Russ.
608. Mescheryakova I.M. (1954). Summer plankton of the Japan Sea. Izvestiya TINRO, v.42, p.288-293, Russ.
609. Mescheryakova I.M. (1960). Seasonal variations of plankton in open parts of the Japan Sea. Izvestiya TINRO, v.46, p.95-114, Russ.
610. Meteorological Conditions on the Shelf of USSR Seas. The Japan Sea (1984). Vladivostok, FERHRI, 449 pp., Russ.

611. Miita T. (1970). Current characteristics measured with current meters at the fixed stations. B. Japanese Soc. Fish. Oceanography, v.28, p.33-58, Jap.
612. Miita T. (1976). The Tsushima Current viewed in the short-term moored current-meter data. B. Japanese Soc. Fish. Oceanography, v.28, p.33-58, Jap.
613. Miita T., Kawatate K. (1986). Trajectories of drift bottles released in the Tsushima Strait. Progr. Oceanography, v.17, N 3-4, p.255-263.
614. Miita T., Ogawa Y. (1984). Tsushima Current measured with current meters and drifters. In: Ichiye T.(ed.) Ocean Hydrodynamics of the Japan and East China Seas. Tokyo, Elsevier, p.67-76.
615. Miita T., Tawara S. (1984). Seasonal and secular variations of water temperature in the East Tsushima Strait. J. Oceanogr. Soc. Japan, v.40, N 2, p.91-97.
616. Min D.H., Lee J.C., Shim T.B., Lee H.S. (1995). Eddy distribution off the east coast of Korea derived from satellite infrared imagery. J. Korean Fish. Society, v.28, N 2, p.145-156, Kor.
617. Minami H. (1985). Sea conditions in the southern part of the Japan Sea. Umi to Sora, v.60, N 2, p.77-88, Jap.
618. Minami H., Andow T. (1983). Characteristics of eddy fields in the Japan Sea. J. Met. Research, v.34, N 6, p.277-287, Jap.
619. Minami H., Hashimoto Y., Konishi Y., Daimon H. (1987). A statistical characteristics of oceanographical conditions in the Japan Sea. Umi to Sora, v.62, N 4, p.163-175.
620. Minami H., Hashimoto Y., Konishi Y., Shuto K. (1984). On the current pattern in the Oki channel. Umi to Sora, v.59, N 3-4, p.115-125, Jap.
621. Minato S., Kimura R. (1980). Volume transport of the western boundary current penetrating into a marginal sea. J. Oceanogr. Soc. Japan, v.36, N 2, p.185-195.
622. Minobe S. (1996). Interdecadal temperature variation of deep water in the Japan Sea (East Sea). Proc. Fourth CREAMS Workshop, Vladivostok.p.81-88.
623. Miyake Y., Saruhashi K. (1988). Contents of 137Cs, plutonium and americium isotopes in the southern ocean waters. Papers Meteor. Geoph., v.39, N 3, p.95-113.
624. Miyao T. (1992). Chemical elements of the precipitation of the coast of the Japan Sea. Umi to sora, N 67, p.281-293, Jap.
625. Miyao T. (1994). The fractal dimension analysis applied to eddies in the Sea of Japan. The Oceanogr. Magazine, v.44, N 1-2, p.13-29.
626. Miyata K. (1958). Characteristics of the Tsushima Current in the Japan Sea. Rep. Development Fish. Res. of the Tsushima Warm Current, v.1, p.147-152, Jap.
627. Miyata K., Shimomura T. (1959). On the transfers of low temperature regions in the north Japan Sea in spring. B. Hokkaido Reg. Fish. Res. Laboratory, N 7, p.1-16, Jap.
628. Miyazaki M. (1949). The incoming and outcoming heat at the sea surface along the Tsushima Warm Current. The Oceanogr. Magazine, v.1, N 2, p.103-111.
629. Miyazaki M. (1952). The heat budget of the Japan Sea. B. Hokkaido Reg. Fish. Res. Laboratory, N 49, p.1-54, Jap.
630. Miyazaki M. (1953). On the water masses of the Japan Sea. B. Hokkaido Reg. Fish. Res. Laboratory, N 7, p.1-65, Jap.
631. Miyazaki M. (1955). Seasonal variations of the sea level along the Japanese coast. Rec. Oceanogr. Works in Japan, v.2, N 3, p.1-8.
632. Miyazaki M. (1971). Study of oceanic circulation and mechanism of variation at Polar front. Reports on study for the Japan Sea. Tokyo, Ministry Sci. Technology, p.51-65, Jap.
633. Miyazaki M., Abe S. (1960). On the water masses in the Tsushima Current area. J. Oceanogr. Soc. Japan, v.16, N 2, p.59-68, Jap.
634. Miyazaki M., Nasukawa J. (1957). On upwelling and sinking exerted by the prevailing wind in the Japan Sea. B. Hokkaido Reg. Fish. Res. Laboratory, N 14, p.63-65, Jap.

635. Miyazono A., Minoda T. (1990). Regional distribution of dinoflagellate population off the coast of Hokkaido in the Japan and Okhotsk Seas from spring to autumn, 1983. J. Oceanogr. Soc. Japan, v.46, N 3, p.96-106.
636. Mizuno S., Kawatate K., Miita T. (1984). Oceanographic observations in the eastern channel of the Tsushima Strait and its adjacent waters. B. Research Inst. For Applied Mechanics, v.60, p.445-454, Jap.
637. Mizuno S., Kawatate K., Miita T. (1986). Current and temperature observation in the east Tsushima Channel and the Sea of Genkai. Progr. Oceanography, v.17, N 3-4, p.277-295.
638. Mizuno S., Kawatate K., Nagahama T., Miita T. (1989). Measurements of East Tsushima Current in winter and estimation of its seasonal variability. J. Oceanogr. Soc. Japan, v.45, N 6, p.375-384.
639. Mizuno S., Miita T., Nagahama T., Kawatate K. (1987). A short-term variability of the Tsushima Current in the eastern channel of the Tsushima Strait in winter. B. Japanese Soc. Fish. Oceanography, v.51, N 3, p.234-238, Jap.
640. Mogi A. (1972). Bathymetry of the Kuroshio region. In: Stommel H., Yoshida K.(eds.) The Kuroshio. Its Physical Aspects. Tokyo, Tokyo Univ. Press, p.53-80.
641. Mogi A. (1979). *AN ATLAS OF THE SEA FLOUR AROUND JAPAN*. Aspects of submarine geomorphology. Tokyo, Tokyo University Press, 96 pp.
642. Moiseenko G.S. (1979). On strong wind conditions in Primorye area. Trudy DVNIGMI, N 85, p.52-58, Russ.
643. Moiseenko G.S. (1983). On the connection between strong winds and main atmosphere characteristics over the Japan Sea. Trudy DVNIGMI, N 109, p.12-16, Russ.
644. Moiseenko G.S. (1983). Strong wind conditions over the Japan Sea. Trudy DVNIGMI, N 109, p.17-25, Russ.
645. Moiseev P.A. (1937). Fishery of flounders by small-sizes vessels in Ussuri Bay in spring of 1935. Izvestiya TINRO, v.12, p.125-158, Russ.
646. Moiseev P.A. (1938). Hydrological investigations of Far Eastern Seas of USSR for 15 years of Soviet rule. Herald of Far Eastern Branch USSR Academy of Sciences, N 30, p.203-217, Russ.
647. Moiseev P.A. (1946). Some data on biology and fishery of flatfish of Peter the Great Bay. Izvestiya TINRO, v.22, p.75-184, Russ.
648. Mokievskaya V.V. (1961). Chemical characteristics of water masses. In: Main Features of Geology and Hydrology of the Japan Sea. Moscow, USSR Academy of Sciences, p.122-125, Russ.
649. *MONTHLY SEA SURFACE TEMPERATURE AND SURFACE CURRENT CIRCULATION OF THE JAPAN SEA AND ADJACENT WATERS (1945)*. London, Air Ministry, 13 pp.
650. Mooers C.N.K., Kang H.S. (1995). Initial spin-up of a Sea of Japan numerical circulation model. In: Alekseev A.S., Bakhanov N.S.(eds.) Advanced Mathematics. Computations and Applications. Novosibirsk, Novosibirsk Computing Center Publishing House, p.350-357.
651. Mooers C.N.K., Kang H.S. (1996). A note on some aspects of the spin-up of the Japan (East) Sea circulation model (SOJ-POM). Proc. Fourth CREAMS Workshop, Vladivostok, p.123-131.
652. Mooers C.N.K., Kang H.S. (1997). Simulation of the Tsushima Warm Current in the Japan (East) Sea. Proc. Int. Symposium "Tsushima Warm Current", Pusan, p.1-37.
653. Mooers C.N.K., Kang H.S., Byun S.K. (1998). PICES WG-10 Bibliography for the circulation of the Japan/East Sea and adjacent waters. Manuscript, 18 pp.
654. Moon C.H., Yang H.S., Lee K.W. (1996). Regeneration processes of nutrients in the Polar front area of the East Sea. 1.Relationship between water mass and nutrient distribution pattern in autumn. J. Korean Fish. Society, v.29, N *, p.503-526, Kor.

655. Morioka Y., Komaki Y. (1978). Seasonal and vertical distribution of zooplankton biomass in the Japan Sea. B. Japan Sea Reg. Fish. Res. Laboratory, N 29, p.255-267, Jap.
656. Morioka Y., Nagahara M., Komaki Y. (1977). Calanoid copepods as indicators of the cold water mass in the Japan Sea. B. Japan Sea Reg. Fish. Res. Laboratory, N 28, p.51-58, Jap.
657. Moriwaki S., Ogawa Y. (1988). Hydrographic features of the "Bottom cold water" on the continental shelf. B. Tohoku Reg. Fish. Res. Laboratory, N 50, p.25-47, Jap.
658. Moriwaki S., Ogawa Y. (1988). Relationship between fluctuations of the "Bottom cold water" and sea level variations. B. Japanese Soc. Sci. Fisheries, v.55, N 4, p.307-314, Jap.
659. Moriwaki S., Ogawa Y. (1989). Influences of the "Bottom cold water" on demersal fishes in the south-western Japan Sea. B. Tohoku Reg. Fish. Res. Laboratory, v.51, p.167-181, Jap.
660. Moriyasu S. (1967). Oceanographic studies of the Japan Sea. 1. Water characteristics. The Oceanogr. Magazine, v.19, N 2, p.177-192.
661. Moriyasu S. (1972). Hydrography of the Japan Sea. Kaye Kagaku, v.4, N 3, p.27-33, Jap.
662. Moriyasu S. (1972). The Tsushima Current. In: Stommel H., Yoshida K.(eds.) The Kuroshio. Its Physical Aspects. Tokyo, Tokyo University Press, p.353-369.
663. Moriyasu S. (1972). On the short-term fluctuations of the Tsushima Current to the northwest of the Noto Peninsula in October 1969. The Oceanogr. Magazine, v.24, N 1, p.1-23.
664. Motoi T., Ono N., Aota M. (1982). Cold water masses appeared in the Okhotsk Sea near Hokkaido in summer. Low Temperature Science, ser.A, N 41, p.199-206, Jap.
665. Murata M., Onoda Y., Tashiro M., Yamagishi Y. (1971). Ecological studies on the squid, *Todarodes pacificus* (Steenstrup) in the northern waters of the Japan Sea in 1970.B. Hokkaido Reg. Fish. Res. Laboratory, N 37, p.10-31, Jap.
666. Murata M., Tashiro M., Yamagishi Y., Suzuuchi T. (1973). Ecological studies on the squid, *Todarodes pacificus* Steenstrup, in the northern waters of the Japan Sea in 1971. B. Hokkaido Reg. Fish. Res. Laboratory, N 39, p.1-25, Jap.
667. Murayama T. (1987). Oceanographic conditions in the south-western Japan Sea- the past work and the prospect in the future. B. Japanese Soc. Fish. Oceanography, v.51, N 3, p.230-234, Jap.
668. Murayama T. (1991). Relationship between the migration of pelagic fish and oceanic environmental factors in the Tsushima Warm Current region. B. Japanese Soc. Fish. Oceanography, v.55, N 3, p.210-218, Jap.
669. Murayama T., Kuwabara A., Ogawa Y. (1990). Physical oceanography off San'in coast. In: Coastal Oceanography of Japanese Islands. Tokyo, Suppl. vol., p.755-767.
670. Muromtsev A.M. (1951). The experience of division of the World Ocean into districts. The Japan Sea. Trudy GOIN, N 10, p.199-201, Russ.

## N

671. Na J.Y. (1988). Wind stress distribution and its application to the upper layer structure in the East Sea of Korea. J. Oceanol. Soc. Korea, v.23, N 3, p.97-109.
672. Na J.Y. (1991). Experiments in ocean circulation modelling in the East Sea (Sea of Japan). Proc. Symposium on the Sea between Korea and Japan, Seoul, p.15-17.
673. Na J.Y., Han S.K. (1988). Spatio-temporal distributions of the wind stress and the thermocline in the East Sea of Korea. B. Korean Fish. Society, v.21, N 6, p.307-316.
674. Na J Y., Choi J., Hwang B. (1995). Simulation of the East Sea circulation in a laboratory experiment of rotating cylindrical container. J. Korean Soc. Oceanography, v.30, N 1, p.57-63.
675. Na J.Y., Han S.K., Cho K.D. (1990). A study on sea water and ocean current in the sea adjacent to Korea peninsula expansion of coastal waters abd its effect on temperature variations in the South Sea of Korea. B. Korean Fish. Society, v.23, N 4, p.267-279.

676. Na J.Y., Han S.K., Seo J.W., Noh Y.G., Kang I.S. (1997). Empirical orthogonal function analysis of surface pressure, SST and winds over the East Sea of Korea (Japan Sea). J. Korean Fish. Society, v.30, N 2, p.188-202, Kor.
677. Na J.Y., Hwang B.J. (1996). Injection of an intermediate fluid into a rotating cylindrical container filled with two-layered fluid. Proc.Fourth CREAMS Workshop, Vladivostok, p.197-201.
678. Na J.Y., Kim B.H. (1990). A laboratory study of formation of "the warm core" in the East Sea of Korea. B. Korean Fish. Society, v.22, N 6, p.415-423.
679. Na J.Y., Lee S.W., Cho K.D. (1991). A study on the sea water and ocean current in the sea adjacent to Korea Peninsula. The vertical structure of temperature in the East Sea of Korea. B. Korean Fish. Society, v.24, N 4, p.215-228, Kor.
680. Na J.Y., Paeng D.G. (1992). Influences of the sea surface wind on current and thermal structures in the southwestern part of East Sea of Korea. B. Korean Fish. Society, v.25, N 1, p.15-28, Kor.
681. Na J.Y., Seo J.W. (1995). Comparison between the sea surface winds and the current measurements in the northern part of the East/Japan Sea. Proc. 8 JECSS/PAMS Workshop, p. 82-83.
682. Na J.Y., Seo J.W. (1996). Wind field characteristics during the period of CREAMS'93. Proc.Fourth CREAMS Workshop, Vladivostok, p.1-6.
683. Na J.Y., Seo J.W., Han S.K. (1992). Monthly mean sea surface winds over the adjacent seas of the Korean peninsula. J. Oceanol. Soc. Korea, v.27, N 1, p.1-10.
684. Nagahara M. (1965). On the seasonal variations of the transport volume and oceanic conditions in the Japan Sea from 1962 to 1964. B. Hokkaido Reg. Fish. Res. Laboratory, N 14, p.71-79.
685. Nagamura(?) K. (1986). Warm Tsushima Current. B. Japanese Soc. Fish. Oceanography, v.50, N 1, p.37-40, Jap.
686. Naganuma K. (1964). Monthly mean water temperature and its standard deviation in the Japan Sea for the period from 1953 to 1962. B. Japan Sea Reg. Fish. Res. Laboratory, N 13, p.63-109, Jap.
687. Naganuma K. (1967). Consideration on the formation of fishing grounds for salmon, saury and squid in the offshore frontal zones of the Japan Sea. B. Japan Sea Reg. Fish. Res. Laboratory, N 18, p.93-107.
688. Naganuma K. (1968). On the persistency of the classes of water temperature in the Tsushima Current region of the Japan Sea. B. Japan Sea Reg. Fish. Res. Laboratory, N 19, p.51-60, Jap.
689. Naganuma K. (1969). The oceanographic fluctuations in the Japan Sea. Kaiye Monthly, v.9, N 2, p.65-69.
690. Naganuma K. (1972). The oceanographical conditions in the Japan Sea. In: Handbook on Fishery Oceanography, Zengyoren Gyokaikyo Center, p.32-38, Jap.
691. Naganuma K. (1973). On the discussion on the existence of the third branch of the Tsushima Current. Ann. Rep. Japan Sea Reg. Fish. Res. Laboratory, N 266, p.1-3, Jap.
692. Naganuma K. (1977). The oceanographic fluctuations in the Japan Sea. Kaye Kagaku, v.9, N 2, p.137-141, Jap.
693. Naganuma K. (1978). On the water temperature fluctuation at the representative points in the Japan Sea along the Honshu coast. B. Japan Sea Reg. Fish. Res. Laboratory, N 29, p.269-282, Jap.
694. Naganuma K. (1979). Forecasting of the oceanic and fishing conditions in the Japan Sea. B.Japanese Soc. Fish. Oceanography, N 35, p.87-92.
695. Naganuma K. (1985). Fishing and oceanographic conditions in the Japan Sea. Umi to sora, v.60, N 1, p.89-103, Jap.

696. Naganuma K. (1985). Oceanographic characteristics in the western part of the Japan Sea. B. Japanese Soc. Fish. Oceanography, N 47-48, p.60-63, Jap.
697. Naganuma K. (1986). Tsushima Warm Current area. B. Japanese Soc. Fish. Oceanography, v.50, N 2, p.122-124, Jap.
698. Naganuma K. (1986). Anomalied hydrological conditions. B. Japanese Soc. Fish. Oceanography, v.50, N 2, p.122-124, Jap.
699. Naganuma K. (1987). Some areas of fluctuations of the seasonal water temperature in the Tsushima Warm Current region in the Japan Sea. B. Japan Sea Reg. Fish. Res. Laboratory, N 37, p.1-11, Jap.
700. Naganuma K. (1992). Regions affected by the Tsushima Warm Current. Variations in ocean environments related to the variations in the fisheries resources. B. Japanese Soc. Fish. Oceanography, v.56, N 2, p.168-172, Jap.
701. Naganuma K., Ichihara M. (1985). A mean image of water temperature in the Japan Sea (1953-1980). Contrib. of the Fish.Res. in the Japan Sea, v.5, p.77-88.
702. Naganuma K., Ichihashi M. (1993). *MONTHLY MEAN AND STANDARD VARIATION OF TEMPERATURE AT THE SURFACE, 50 m, 100 m and 200 m DEPTHS IN THE JAPAN SEA FOR THIRTY YEARS 1961-1990*. Contrib. Fish. Res. Japan Sea, v.26, 117 pp., Jap.
703. Nagasawa T. (1990). Planktonic larvae of the pointhead flounder, *Cleisthenes pinetorum herzensteini* in the northern Japan Sea. B. Japan Sea Nat. Fish. Res. Institute, N 40, p.15-25, Jap.
704. Nagasawa T., Kasahara S. (1989). Soviet-Japanese investigation of squid (*Todarodes pacificus* Steenstrup) in the Japan Sea in 1986. In: The Results of Investigations of Biological Resources in the North-Western Pacific Ocean, Vladivostok, p.146-164, Russ.
705. Nagata H. (1992). A short review on phytoplankton distribution and primary production in the Japan Sea. Proc. Japan. Sci. Fish. Resources, v.28, p.29-44, Jap.
706. Nagata H. (1993). A phytoplankton bloom recorded in a long-term monitoring of chlorophyll a concentration in the Japan Sea. B. Plankt. Soc. Japan, v.39, N 2, p.145-147.
707. Nagata K. (1994). Seasonal changes in distribution of nutrients supplied by river water in the coastal area off Niigata, southeastern Japan Sea. B. Japanese Soc. Fish. Oceanography, v.58, N 1, p.1-9, Jap.
708. Nagata K. (1994). Characteristics in change of chlorophyll in the Japan Sea. B. Japanese Soc. Fish. Oceanography, v.58, N 2, p.119-122, Jap.
709. Nagata H. (1994). A preliminary report on distributions and seasonal changes of transparency in the Japan Sea. B. Japan Sea Nat. Fish. Res. Institute, N 44, p.31-38, Jap.
710. Nagata H. (1994). The relationship between chlorophyll-a and transparency in the southern Japan Sea. B. Japan Sea Natl. Fish. Res. Institute, N 44, p.39-47, Jap.
711. Nagata H., Kitani K. (1985). Chlorophyll-a distribution and oceanographic structure in the sea area off the San-in district in spring 1984. B. Japan Sea Reg. Fish. Res. Laboratory, N 35, p.161-164.
712. Nagata H., Kitani K. (1987). Vertical distribution of chlorophyll-a along the PM line in the Japan Sea. B. Japan Sea Reg. Fish. Res. Laboratory, N 37, p.13-19.
713. Nagata H., Ogawa Y., Hirai M., Hirakawa K. (1996). Geographical and seasonal changes of water transparency in the seas adjacent to Japan. B. Japan Sea National Fisheries Research Institute, v.46, p.1-24, Jap.
714. Nagata Y., Lobanov V.B. (1998). Multilingual Nomenclature of Place and Oceanographic Names in the Region of the Okhotsk Sea. MIRC Report N 1, 57 pp.
715. Nakamiya T. (1953). On the ocean current in the Japan Sea inferred from results of drift bottle experiments. Hydrographic B., v.10, p.1-9, Jap.
716. Nakamura K. (1992). Interannual variation of the water temperature in the southern part of the Japan Sea. Umi to sora, v.67, Extra N, p.217-230, Jap.

717. Nakata K., Hata K., Takano K. (1988). Sub-tidal frequency fluctuations of current velocity and sea level in the Japan Sea. Progress in Oceanography, v.21, p.227-240.
718. Nakayama I. (1951). On the mean surface temperature of seas around Japan. B.Kobe Mar. Observatory, v.159, p.1-16, Jap.
719. Nakayama I. (1956). On the temperature changing in the Japan Sea. J. Meteorol. Res., v.8, N 6, p.34-38.
720. Nakayama I. (1958). The charts of the mean surface water temperature of seas around Japan (1911-1940). B. Hakodate Mar. Observatory, v.5, p.67-74, Jap.
721. Nakayama J. (1956). On the upper limit of the Proper Cold Water in the Sea of Japan. The Oceanogr. Magazine, v.8, N1, p.65-67.
722. Nakayama J. (1958). On the upper limit of the Proper Cold Water in the Sea of Japan.B. Maizuru Mar. Observatory, N 6, p.*.
723. Nakayama R., Ozaki H. (1967). Summary of oceanographic conditions of the sea west of Japan in 1966. J. Oceanogr. Soc. Japan, v.23, N 6, p.308-309.
724. Nam S.Y., Seung Y.H. (1992). A numerical model on the inflow into the Japan Sea: the formation and transport of the Tsushima Warm Current. B. Korean Fish. Society, v.25, N 1, p.58-64, Jap.
725. Nan'niti T., Akamatsu H., Yasuoka T. (1966). A deep current measurements in the Japan Sea. The Oceanogr. Magazine, v.18, N 1-2, p.63-71.
726. Nan'niti T., Fujiki A. (1967). Secular variations of hydrographic conditions in the East Tsushima Strait. J. Oceanogr. Soc. Japan, v.23, N 2, p.201-212, Jap.
727. Nashida K., Kanamaru S. (1991). Early life stages of demersal fishes and oceanic environments in the middle of the Japan Sea. B. Japanese Soc. Fish. Oceanography, v.55, N 3, p.218-224, Jap.
728. Nasukawa I. (1958). On the meandering of the Tsushima Current. B. Hokkaido Reg. Fish. Res. Laboratory, N 17, p.125-131, Jap.
729. Nezlin N.P., Konovalov B.V. (1980). On connection between vertical distribution of phytoplankton and concentration of chlorophyll "a" in euphotic zone in the Japan Sea. In: Investigation of the Japan Sea Plankton. Moscow, IOAN, p.52-56, Russ.
730. Nezlin N.P., Rutkovskaya V.A. (1980). Influence of sunlight on vertical distributions of the Japan Sea. In: Investigation of the Japan Sea Plankton. Moscow, IOAN, p.57-64, Russ.
731. Niino H.,Emery K.O., Kim C.M. (1969). Organic carbon in sediments of Japan Sea. J. Sedim. Petrology, v.39, p.1390-1398.
732. Nikitin A.A., Dyakov B.S. (1995). Anticyclonic eddy's evolution in the Japan Sea near Korean coast in 1991-1992 (by satellite and shipping data). Issled.Zemli Iz Kosmosa, N 6, p.90-98, Russ.
733. Nikitin A.A., Dyakov B.S. (1996). Water structure and water dynamics of the Japan Sea frontal zone in spring determined by satellite images and data of research vessels. Proc.Fourth CREAMS Workshop, Vladivostok, p.53-56.
734. Nikitin A.A., Dyakov B.S., Kazantsev P.I. (1989). Peculiarities of the oceanographic conditions in the period of northward migrations of sardine in the western part of the Japan Sea in 1988. In: "RESULTS OF INVESTIGATIONS ON FISHERY FORECAST IN THE FAR EAST REGION". Ed.Bocharov L.N., Vladivostok, p.40-48, Russ. [*The charts of dynamic topography, temperature, and sardine (iwashi) distribution are analyzed for the period of April-May 1988*.]
735. Nikitin A.A., Kharchenko A.M. (1990). The variability of thermal fronts in the Japan Sea determined by satellite sensing. In: Bocharov L.N.(ed.) Remote Sensing of the Ocean. Vladivostok, p.45-54, Russ. [*Analyses of satellite infra-red images in January, February, March, June, September of 1986. Thermally quasi-homogeneous areas as "cold coastal", "cold", "relatively cold", "Primorye Current", "relatively warm", "subtropical*

*transformed", "warm", "Tsushima Current" were identified. Different configurations of Subarctic front was shown in warm and cold periods of the year*.]

736. Nikitin A.A., Kharchenko A.M., Aschepkov A.T. (1989). The use of satellite images for determination of ways and dates of sardine migration in the Japan Sea. Abstracts of Conference on use of satellite information for atmosphere and ocean investigation. Moscow, p.40, Russ. [*The migration of sardine occurs with water temperature 8-10°C. The position of the Subarctic (Polar) thermal front in two places- southern (up to 37°N) and northern (up to 42°N) were located*.]
737. Ninomiya K. (1964). Water substance budget over the Japan Sea and the Japan islands during the period of heavy snow storms. J. Meteorol. Soc. Japan, v.42, N 5, p.317-329.
738. Ninomiya K. (1964). Heat budget over the Japan Sea and the Japan islands during the period of heavy snow storm. Papers in Meteorol. Geophysics, v.15, N 1, p.52-70.
739. Ninomiya K. (1968). Heat and water budget over the Japan Sea and the Japan islands in winter season with special emphasis on the relation among the supply from sea sutface,the convective transfer and the heavy snowfall. J. Meteorol. Soc. Japan, v.46, N 5, p.343-372.
740. Nishida K. (1927). On the currents, water temperature and salinity of the adjacent seas of Korea (1923-1926). Rept. Oceanographic Observ. of Govt. Fish. Exp. Station in Pusan, v.2, p.1-50, Jap.
741. Nishida K. (1933). On the hydrographical investigations in the south-western part of the Japan Sea during October and November, 1930. Ann. Rept. Oceanogr. Observ. Govt. Fish. Exp. Station, v.5-6, p.63-88, Jap.
742. Nishimura S. (1965). The zoogeographical aspects of the Japan Sea. Part 1. Publ. Seto Mar. Biol. Laboratory, v.13, N 1, p.35-79.
743. Nishimura S. (1965). The zoogeographical aspects of the Japan Sea. Part 2.Publ. Seto Mar. Biol. Laboratory, v.13, N 2, p.81-101.
744. Nishimura S. (1966). The zoogeographycal aspects of the Japan Sea. Part 3. Publ. Seto Mar. Biol. Laboratory, v.13, N 5, p.365-384.
745. Nishimura S. (1968). The zoogeographical aspects of the Japan Sea. Part.4. Publ. Seto Mar. Biol. Laboratory, v.15, N 5, p.329-352.
746. Nishimura S. (1969). The zoogeographical aspects of the Japan Sea. Part 5. Publ. Seto Mar. Biol. Laboratory, v.17, N 2, p.67-142.
747. Nishimura S. (1983). Okhotsk Sea, Japan Sea and East China Sea. In: Ketchum B.(ed.) Estuaries and Enclosed Seas. Ecosystem of the World, v.26, p.375-401.
748. Nishiyama K., Inagawa M., Mizuno T. (1993). The Japan Sea Proper Water and water circulation in the Japan Sea. Papers in Meteorology and Geophysics, v.44, N 1, p.1-10.
749. Nishiyama K., Kawae S, Sasaki H. (1990). The Japan Sea Proper Water and the Japan Sea warm eddy. B.Kobe Mar.Observatory, v.209, p.1-10, Jap.
750. Nitani H. (1971). Study of formation of the intermediate and the bottom water and effects of biological productivity. Reports on Study for the Japan Sea. Tokyo, Ministry of Science and Technology, p.81-98, Jap.
751. Nitani H. (1972). On the deep and bottom waters in the Japan Sea. In: Shoji D.(ed.) Researches in Hydrography and Oceanography. Tokyo, Hydr. Dept. of Japan, p.151-201.
752. Nof D. (1993). The penetration of Kuroshio water into the Sea of Japan. J.Phys.Oceanography, v.23, N 5, p.797-807.
753. Noh Y. (1996). Numerical simulation of the oceanic mixed layer of the East Sea using OGCM-OMLM coupled model. Proc.Fourth CREAMS Workshop, Vladivostok, p.137-141.
754. Noh Y., Jang C.J., Kim C.H., Yoon J.H. (1996). Embedding an oceanic mixed layer into an ocean general circulation model of the East Sea (Japan Sea). The importance of mixing processes near the Trans. Amer. Geophys. Union, v.*, p.169.

755. Noh Y., Jang C.J., Kim C.H., Yoon J.H. (1996). Embedding an oceanic mixed layer into an ocean general circulation model of the East Sea (Japan Sea). La Mer, v.34, N *, p.95-107.
756. Noh Y., Kim C.H., Yoon J.H. (1995). Numerical investigation of the three dimensional structure of the oceanic mixed layer in the East Sea (Japan Sea). Proc.8 JECSS/PAMS Workshop, p.97-98.
757. Nomitsu T., Okamoto M. (1927). The causes of annual variation of mean sea level along the Japanese coast. Mem. College Sci., Kyoto Imp. University, v.10, N 3, p.125-161, Jap.
758. Nozaki Y., Tsunogai S., Nishimura M. (1973). Pb210 in the Japan Sea. J. Oceanogr. Soc. Japan, v.29, N 6, p.251-256.
759. Nozaki Y., Yamada M. (1987). Thorium and protactinium isotope distribution in waters of the Japan Sea. Deep-Sea Research, v.34, N 8, p.1417-1430.
760. Nuzhdin V.A. (1987). The distribution of fish pollock eggs and larvae in the NW Japan Sea. In: The Population Structure, Dynamics of Abundance and Ecology of Pollock. Vladivostok, TINRO, p.74-80, Russ.
761. Nuzhdin V.A. (1994). Species and distribution of winter-spring ichthyoplankton in the northern Japan Sea. Izvestiya TINRO, v.115, p.92-107

# O

762. Oba T., Kato M., Kitazato H., Koizumi I., Omura A., Sakai T., Takayama T. (1991). Paleoenvironmental changes in the Japan Sea during the last 85,000. Paleooceanography, v.6, N 4, p. 499-518.
763. *OCEANOGRAPHIC CHARTS (1927-1942)(*).* Pusan Fish. Exp.Station, * pp.
764. *OCEANOGRAPHICAL ATLAS OF THE WESTERN NORTH PACIFIC OCEAN*. Vol.1. Monthly normal of SST, 1956-1970 (1975). Tokyo, Marine Ass., 90 pp.
765. Odamaki M. (1984). Tide and tidal current in the Tsugaru Strait. B. Coastal Oceanography, v.22, N *, p.12-22, Jap.
766. Odamaki M. (1989) Tides and tidal currents in the Tsushima Strait. J. Oceanogr. Soc. Japan, v.45, N 1, p.65-82.
767. Odamaki M. (1989). Co-oscillating and independent tides of the Japan Sea. J. Oceanogr. Soc. Japan, v.45, N 3, p.217-232.
768. Ogata M., Baba E., Hurai T., Nagai T. (1991). Investigation of topographic upwelling. Trans. West-Japananese Soc. Nav. Architectures, v.81, p.363-374, Jap.
769. Ogawa Y. (1974). The relation between the high saline water in the Japan Sea and Tsushima Current. B. Japanese Soc. Fish. Oceanography, v.24, p.1-12, Jap.
770. Ogawa Y. (1979). Alternation of water masses on the coastal fishing ground in the south-western Japan Sea. B. Seikai Reg. Fish. Res. Laboratory, N 52, p.79-89.
771. Ogawa Y. (1981). Hydrography of coastal waters in the south-western Japan Sea and its fishery-biological significance. B. Yamaguchi Pref. Fish. Exp. Station, v.18, p.1-96, Jap.
772. Ogawa Y. (1982). Evaluation of the influence of changes in prey abundance on catch fluctuations of “Shiroika”, *Loligo edulis*, in coastal waters of the southwestern Japan Sea. B.Japanese Soc.Fish.Oceanography, N 41, p.11-16, Jap.
773. Ogawa Y. (1983). Seasonal changes in temperature and salinity of water flowing into the Japan Sea through the Tsushima Strait. B. Japanese Soc. Fish. Oceanography, N 43, p.1-8, Jap.
774. Ogawa Y., Miita T., Ichihara A., Hasegawa N., Inoue N. (1978). Fluctuations of the Tsushima Current measured with current drogue. B. Seikai Reg. Fish. Res. Laboratory, N 51, p.13-44.
775. Ogawa Y., Moriwaki S. (1985). Observational evidence showing correlations between day-to-day variations in *Loligo edulis* fishery and current fluctuations in coastal waters off Hamada. B. Japanese Soc. Fish. Oceanography, N 49, p.7-15, Jap.

776. Ogawa Y., Moriwaki S. (1986). A possible mechanism of fluctuations of so-called "Bottom cold water" on the continental shelf. B. Tohoku Reg. Fish. Res. Laboratory, N 48, p.97-114, Jap.
777. Ogawa Y., Nakahara T. (1980). Mode of spatial distribution of pelagic fishes within the coastal fishing ground in the southwestern Japan Sea. Japanese J. Ecology, v.30, p.31-44.
778. Ogawa Y., Nakahara T. (1981). Daily variations in the occurrence of pelagic fishes and zooplankton within a coastal fishing ground of the southwestern Japan Sea. J. Oceanogr. Soc. Japan, v.36, N 5, p.275-285.
779. Ogawa Y., Nakahara T., Tanaka R. (1977). Hydrographic nature of coastal fishing grounds in the SW Japan Sea. B. Seikai Reg. Fish. Res. Laboratory, N 50, p.73-126.
780. Ogawa Y., Yamada H. (1983). Distributions of *Loligo edulis* in a shelf region of the southwestern Japan Sea. B. Japanese Soc. Fish. Oceanography, N 44, p.1-8, Jap.
781. Ogura S. (1927). Oceanographic works in Japan. Proc.Conference "Productive forces of Russian Far East area", N 2, p.65-71( + 11 maps), Russ.
782. Ogura S. (1933). The tides in the seas adjacent to Japan. B. Hydrogr. Dept. Japan. Imp. Navy, v.7, 189 pp., Jap.
783. Oh I.S., Kim S.I., Bong J.H. (1988). Storm surges by the typhoons passing through the South Sea of Korea. J. Korean Met. Society, v.24, N 3, p.72-84, Kor.
784. Oh I.S., Lee J.K., An H.S. (1993). A study of storm surges of the seas in North Eastern Asia. 2. Numerical simulations. J. Korean Earth Science Society, v.14, N 4, p.467-481, Kor.
785. Oh I.S., Park M.S. (1994). A study on the variation of monthly mean sea level of the Northeastern Asia by empirical orthogonal functions. J. Korean Earth Science Society, v.15, N 3, p.207-218, Kor.
786. Oh I.S., Rabinovich A.B., Park M.S., Mansurov R.N. (1993). Seasonal sea level oscillations in the East Sea (Sea of Japan). J. Oceanol. Soc. Korea, v.28, N 1, p.1-16.
787. Ohtani K. (1987). Westward inflow of the coastal Oyashio water into the Tsugaru Strait. B. Fac. Fish. Hokkaido University, N 38, p.209-220,*.
788. Ohtani K., Hatta M. (1991). Geostrophical transport of the Tsushima Warm Current near the west of Tsugaru Strait. Proc. Symp. on the Sea between Korea and Japan, Seoul, p.5-10.
789. Ohtani K., Murakami T., Onishi M. (1994). Monitoring the Tsushima Warm Current on the west of the Strait of Tsugaru. Proc. CREAMS'94 Symposium, Fukuoka, p.129-133.
790. Ohwada M. (1971). Distribution of chlorophyll and phaeophytin in the Sea of Japan. The Oceanogr.Magazine, v.23, N 1, p.21-32.
791. Ohwada M., Ogawa F. (1966). Plankton in the Japan Sea. The Oceanogr. Magazine, v.18, N 1-2, p.39-42.
792. Ohwada M., Tanioka K. (1971). Currents and distribution of water masses in the Japan Sea. Reports study on the Japan Sea. Tokyo, p.*.
793. Ohwada M., Tanioka K. (1972). Cruise report on the simultaneous observations of the Japan Sea in October 1969. The Oceanogr. Magazine, v.23, N 2, p.47-58.-
794. Ohwada M., Yamamoto K. (1966). Some chemical elements in the Japan Sea. The Oceanogr. Magazine, v.18, N 1-2, p.31-37.
795. Okada T. (1922). On the surface temperature of the Japan Sea. Mem. Kobe Marine Observatory, v.1, N 2, p.*
796. Okada T. (1931). The climate of Japan. B. Central Met. Observatory of Japan, v.1, N 2, p.*
797. Okada T., Fujiwara S., Maeda S. (1923). On the surface temperature of the Japan Sea. Mem. Kobe Mar. Observatory, v.1, N 2, p.*, Jap.
798. Okhryamkin D.I. (1936). On the founding of *ILISHA ELONDATA BENNETT* in Peter the Great Bay. Vestnik DVF, USSR Academy of Sciences, N 18, p.*, Russ.
799. Okubo T. (1980). Radium-228 in the Japan Sea. J. Oceanogr. Soc. Japan, v.36, N 5, p.263-268.

800. Okubo T. (1981). Radium-228 in surface water of the Seto inland Sea. J. Oceanogr. Soc. Japan, v.37, N 5, p.279-286.
801. Omura K. (1991). Variation of sea level difference in East Tsushima Current. B. Fukuoka Fish. Exp. Station, v.17, p.1-4, Jap.
802. Onatsevich O.A. (1876). Brief hydrographic review of scooner "VOSTOK" navigation in 1875. Morskoi sbornik, N 9, p.*, Russ.
803. Onatsevich O.A. (1877). Some words about currents in the LaPerouse Strait. Morskoi sbornik, N 2, p.*, Russ.
804. Onatsevich O.A. (1878). Collection of the observations made during the expedition in the East Ocean. Sankt-Petersberg, * pp., Russ.
805. Oshima K. (1987). On the stability of the Soya Warm Current. J. Oceanogr. Soc. Japan, v.43, N 1, p.61-67.
806. Oshima K. (1987). Sub-mesoscale waves in the region of the Soya Warm Current. 1. Descriptive studies. Low Temperature Science, ser.A, N 47, p.117-129, Jap.
807. Oshima K. (1988). Submesoscale waves in the region of the Soya Warm Current. 2. Numerical model experiment. Low Temperature Science, ser.A, N 47, p.131- 145, Jap.
808. Oshima K. (1994). The flow system in the Japan Sea caused by a sea level difference through shallow straits. J. Geophys. Research, v.99, N C5, p.9925-9940.
809. Oshima K. (1996). Inflow-outflow system of the Japan Sea. Proc. Fourth CREAMS Workshop, Vladivostok, p.133-136.
810. Oshima K., Wakatsuchi M. (1990). A numerical study of barotropic instability associated with the Soya Warm Current in the Sea of Okhotsk. J. Phys. Oceanography, v.20, N 4, p.570-584.
811. Ossendovskii A.M. (1903). Materials to hydrology of Ussuri region. Zapiski obschestva izucheniya Amurskogo kraya, v.9, N 2, p.26-30, Russ.
812. Ostrovskii A.G. (1995). Signatures of stirring and mixing in the Japan Sea surface temperature patterns in autumn 1993 and spring 1994. Geophysical Research Letters, v.25, N 17, p.2357-2360.
813. Ostrovskii A., Hiroe Y. (1994). The Japan Sea circulation as seen in satellite infrared imagery in autumn 1993. Proc. CREAMS'94 Symp., Fukuoka, p.75-88.
814. Outi M. (1967). On the long-term variations in sea level. 2.The waters along the coast of the Japan Sea. B. Kyoto University, ser.B, N 31, p.7-21, Jap.

# P

815. Paimeeva L.G. (1987). The distribution and the growth of *Laminaria japonica* in northern Primorye. In: "MARKETABLE ALGAES AND THEIR USE". Moscow, VNIRO, p.26-33, Russ.
816. Pakhomova A.S. (1953). The influence of Amur River flow on sedimentation in Tartar Strait. Trudy GOIN, N 13, p.107-166, Russ.
817. Palshin N.A., Vanyan L.L., Kuznetsov V.A., Medzhitov R.D., Nikiforov V.M., Utada H., Shimizu H. (1997). Voltage measurements with the cable crossing the Sea of Japan from Nakhodka to Naoetsu. Acta Oceanographica Taiwanica, v.36, N 1, p.11-24.
818. Panfilova S.G. (1961). Water temperature (of the Japan Sea). In: Stepanov V.N.(ed.) Basic Features of Geology and Hydrology of the Japan Sea. Moscow, USSR Academy of Sciences Publ.House, p.155-169, Russ. [*General description of temperature distribution in different seasons based on data up to 1956 was made.*]
819. Panfilova S.G. (1961). Water salinity (of the Japan Sea). In: Stepanov V.N.(ed.) Basic Features of Geology and Hydrology of the Japan Sea. Moscow, USSR Academy of Sciences

Publ.House, p.170-178, Russ. [*General description of salinity distribution in different seasons by data up to 1956*.]
820. Pang I.C., Oh I.S. (1994). Long-period sea level variations around Korea, Japan and Russia. B. Korean Fish. Society, v.27, N 6, p.733-753.
821. Park C.K. (1972). Hourly change of temperature and salinity in the Korea Strait. J. Oceanol. Soc. Korea, v.7, N 1, p.15-18, Kor.
822. Park C.K. (1978). Chemical oceanographic aspect of the cold water mass in offshore of the east coast of Korea. B. Korean Fish. Society, v.11, N 2, p.49-54, Kor.
823. Park C.K. (1979). On the distribution of dissolved oxygen off the east coast of Korea. J. Oceanol. Soc. Korea, v.14, N 2, p.67-70, Kor.
824. Park J.S. (1967). Note sur les chaetognathes indicateurs planctoniques dans la mer coreenne en hiver 1967. J. Oceanol. Soc. Korea, v.2, N 1-2, p.34-41, Fr.
825. Park J.S. (1970). The distribution of chaetognaths in Korea particulary in the southern waters, and their relation to the character of water masses in the summer of 1967.In: Marr J.C.(ed.) The Kuroshio-2. Honolulu, East-West Center Press, p.301-312.
826. Park J.S. (1973). The distribution of chaetognaths in the Korea Strait and their relation to the character of water mass. J. Oceanol. Soc. Korea, v.8, N 1, p.33-45.
827. Park J.S., Kang C.K., An K.H. (1991). Community structure and spatial distribution of phytoplankton in the Polar front region off the east coast of Korea in summer. B. Korean Fish. Society, v.24, N 4, p.237-247.
828. Park J.S., Lee S.S., Kang Y.S., Huh S.H. (1991). Distribution of indicator species of copepods and chaetognaths in the middle-eastern waters of Korea and the relationship between their distribution and characteristics of water masses. B. Korean Fish. Society, v.24, N 3, p.203-212, Kor.
829. Park K.E., Chung J.Y. (1997). Spatial and temporal variability of sea surface temperature fronts in the East Sea using satellite data (NOAA/AVRR). Proc.CREAMS Symposium, Fukuoka, p.323-328.
830. Park W.S, Oh I.S., Shim T.B. (1995). Temporal and spatial distributions of heat fluxes in the East Sea (Sea of Japan). J. Korean Soc. Oceanography, v.30, N 2, p.91-115, Kor.
831. Park Y.A., Kim K.R, Choi J.Y., Park S.C. (1988). Size distribution of suspended particulate materials in the southern East Sea of Korea. J. Oceanol. Soc. Korea, v.23, N 2, p.76-88.
832. Park Y.A., Song M.Y. (1971). Sediments of the continental shelf off the south coast of Korea. J. Oceanol. Soc. Korea, v.6, N 1, p.16-24.
833. Park Y.C., Son S.K., Chung K.H., Kim K.H. (1995). Characteristics of fluorescent organic matter and amino acids composition in the East Sea. J. Korean Soc. Oceanography, v.30, N 4, p.341-354.
834. Pavlenko M.N. (1920). Fisheries in Peter the Great Bay. In: Materials on Investigations on Fisheries at Far East, v.1, p.*, Russ.
835. Pavlova J.V. (1958). Water circulation in the Japan Sea. Trudy IOAN, Extra N, p.21-25, Russ. [*The schemes of geostrophic currents were made on multi-year averaged fields of temperature and salinity. Their quantity and distribution were not given*.]
836. Pavlychev V.P., Danchenkov M.A. (1997). Peculiarities of horizontal water structure in Korean Bay of the Japan Sea in a winter. Abstracts 10th Intern. Conference on Fish. Oceanography, Saint-Petersberg, p.96, Russ.
837. Pavlychev V.P., Teterin A.I. (1996). Interannual changes of thermal conditions in the North-Western Japan Sea. Proc.Fourth CREAMS Workshop, Vladivostok, p.71-75.
838. Pestereva N.M., Han Y.H. (1996). Role of the atmospheric circulation in the formation Japan Sea surface temperature anomalies. Proc.Fourth CREAMS Workshop, Vladivostok, p.29-33.

839. Svinukhov G.V.(ed.) Physical Geography of the Primorye Region. (1990). Vladivostok, 208 pp., Russ. [*Textbook for high-school students. Common information. Temperature, salinity, water masses, tides, waves, currents and ice were analysed using un-referenced data. Four water masses were identified: Surface Pacific, Surface, Deep, Intermediate. It is interesting that the deep water mass was shown as warmer in winter than in summer (seasonal variations ?). Simplified scheme of currents was presented.*]
840. Pischalnik V.M. (1995). Computer Hydrological Atlas of the Sakhalin shelf. Manuscript, Yuzhno-Sakhalinsk, 3 pp.
841. Pischalnik V.M. (1995). An attempt on the compiling of the computerized hydrolologic/hydrochemic atlas of the Sakhalin shelf. In: Complex Studies of Ecosystem of the Sea of Okhotsk.. Moscow, VNIRO Publ.House, p.67-78, Russ.
842. Pischalnik V.M., Klimov S.M. (1991). Catalogue of Deep Oceanographical Observations in Coastal Sakhalin Zone From 1948 to 1987. Yuzhno-Sakhalinsk, 166 pp., Russ. [*Catalogue of Russian expeditions around of Sakhalin. In Tartar Strait (basically, on 7 standard sections) about 500 stations were occupied.*]
843. Piskunov I.A. (1949). Motion of herring for spawning at western Sakhalin. Rybnoye khozyaistvo, N 5, p.37-41, Russ.
844. Piskunov I.A. (1949). On age composition of the spawning herring at southern Sakhalin area in 1948. Izvestiya TINRO, v.29, p.182-183, Russ.
845. Pogodin A.G. (1975). The plankton distribution in the northern Tartar Strait in summer of 1973. Izvestiya TINRO, v.98, p.8-15, Russ.
846. Pogodin A.G., Shatilina T.A. (1994). On seasonal and year-to-year variability of water temperature in the northern Japan Sea. Manuscript, Vladivostok, TINRO, 78 pp.
847. Pokudov V.V. (1974). On the problem of correlation of Tartar Strait ice-covering and heat transport through the Korean Strait. Meteorologiya i Gidrologiya, N 11, p.96, Russ.
848. Pokudov V.V. (1975). Water- and thermo-exchange of the Japan Sea through the Korean Strait in summer. Trudy DVNIGMI, N 50, p.11-23, Russ. [*Annual Japanese data (August 1965-1970) on a section across Tsushima Strait (the source of the data is not specified) were used for calculation of geostrophic currents (the zero surface was put on a bottom). The maximal value of calculated velocity in a strait was about 120 cm/c. Velocity of East-Korean Current- 40 cm/c. Average transport through the Strait -2.45 Sv.*]
849. Pokudov V.V. (1975). Thermal conditions of the coastal regions around Japan. Trudy DVNIGMI, N 55, p.23-35, Russ.
850. Pokudov V.V., Manko A.N., Khlusov A.N. (1976). A pecularities of hydrological conditions of the Japan Sea regime in a winter. Trudy DVNIGMI, N 60, p.74-115, Russ. [*Data of Russian investigations in winters of 1974 and 1975 are analysed. Thermal conditions in March-April were more severe than in December-January. Cold current was traced from Primorye up to Tsushima Strait.*
851. Pokudov V.V., Supranovich T.I. (1975). Development of oceanographic investigations in FERHRI for 25 years. Trudy DVNIGMI, N 50, p.3-10, Russ.
852. Pokudov V.V., Tunegolovets V.P. (1975). New scheme of currents in the Japan Sea in winter period. Trudy DVNIGMI, N 50, p.24-32, Russ. [*Simplified schemes of geostrophical circulation were developed using data obtained in March-April of 1974. The Tsushima Current was more intensive in summer and the Primorye Current in winter. New currents were proposed: "South Primorye Current" and "Primorye Counter Current".*]
853. Pokudov V.V., Tunegolovets V.P. (1975). Thermal balance of the Japan Sea in the beginning of the spring warming. Meteorologiya i Gidrologiya, N 3, p.74-84, Russ.
854. Pokudov V.V., Vlasov N.A. (1980). Thermal conditions of coastal waters off Primorye and Sakhalin determined by hydrometeorological stations. Trudy DVNIGMI, N 86, p.109-118, Russ. [*Secular and interannual variations of monthly averaged SST on 23 coastal*

*hydrometeorological stations along Primorye and Sakhalin for the period of 5-40 years before 1975 were analysed. Minimal SST (-1.3°C- 1.8°C) was observed in January-February, maximal in August (from 14.1 in Grossevichi up to 23.2 in Possiet). Six groups of quasi-coherent secular and year-to-year variations were defined: "Southern" (Peter the Great Bay), "Central" (43-45°N), "Northern (45-49°N), "South Sakhalin" (46-48°N), "North Sakhalin" (49-52°N), and northward of 49°N along Primorye coast. Heat advection is suggested as the main reason of such variations*.]

855. Polovinkin A.A. (1927). To problem of the connection of Sakhalin Island with continent. Proc.Conference "Productive forces of Russian Far East area", N 2, p.101-111, Russ.
856. Polyakova A.M. (1968). *ATLAS OF WAVES AND WINDS OF THE JAPAN SEA*. Vladivostok, 310 pp., Russ.
857. Polyakova A.M. (1983*). ATLAS OF WATER TEMPERATURE OF THE JAPAN SEA*. Vladivostok, 52 pp., Russ.
858. Ponomarev V.I., Salyuk A.N., Bychkov A.S. (1996). The Japan Sea water variability and ventilation processes. Proc.Fourth CREAMS Workshop, Vladivostok, p.63-68.
859. Ponomarev V.I, Yurasov G.I. (1994). The Tatar (Mamiya) Strait currents. J. Korean Soc. Oceanography, v.6, N 4, p.335-339.
860. Ponomareva L.A. (1954). Winter zooplankton in the northern Japan Sea. Trudy IOAN, v.9, p.159-172, Russ.
861. Ponomareva L.A. (1957). The distribution of plankton in the southern Tartar Strait. Trudy IOAN, v.20, p.30-37, Russ.
862. Ponomareva L.A. (1959). Some data on zooplankton of the western coast of southern Sakhalin. In: The Investigation of Far Eastern Seas of USSR", N 6, p.47-57, Russ.
863. Ponomaryeva T.G. (1989). Water exchange between the Okhotsk and Japan Seas across the Amur estuary. Trudy DVNIGMI, N 38, p.123-138, Russ.
864. Preobrazhenskii L.Yu. (1960). The calculation of tidal oscillations of sea level. Trudy GOIN, N 57, p.73-77, Russ.
865. Prescott J.R.V. (1987). Maritime Jurisdiction in East Asian Seas. Honolulu, East-West Center Press, 72 pp.
866. Probatov A.N. (1951). On the penetration of heat-loving fishes in the Sakhalin waters. Doklady Akademii nauk SSSR, v.27, N 1, p.*, Russ.
867. Probatov A.N. (1954). The distribution and quantity of spawning herring at western coast of the Japan Sea. Izvestiya TINRO, v.39, p.21-58, Russ.
868. Probatov A.N., Shelegova E.K. (1952). To the method of time prognosis of herring spawning beginning at western coast of southern Sakhalin. Meteorologiya i Gidrologiya, N 5, p.51-53, Russ.
869. Probatov A.N., Shelegova E.K. (1968). The distribution of spawning herring catches at southern Sakhalin coast. Izvestiya TINRO, v.65, p.35-41, Russ. [*It is offered to predict terms of the approach of a herring on heat volume of waters in March on a section at western coast of Sakhalin*.]
870. Propp M.V., Propp L.N. (1981). Hydrochemical base of primary production processes in the near-shore area of the Japan Sea. Marine Biology, N 1, p.29-38, Russ. [*The results of observations in one small bay in Peter the Great Bay are discussed*.]

# R

871. Rabinovich A.B., Shevchenko G.V., Sokolova S.E. (1992). An estimation of extreme sea levels in the northern part of the Sea of Japan. La Mer, v.30, N 3, p.179-190.
872. Rabinovich A.B., Sokolova S.E. (1992). On organizing a catalogue of storm surges for the Sea of Japan. Natural Hazard, v.5, p.319-325.

873. Rachkov V.I. (1988). Some features of short-period variations of oceanographical conditions in coastal zone of northern Primorye. Manuscript. Vladivostok. Pacific Inst. Fish.Oceanography (TINRO), 26 pp., Russ.
874. Rachkov V.I. (1989). Seasonal changes of chemical and hydrological conditions at upper shelf part in the northern Japan Sea. Manuscript. Vladivostok. Pacific Inst.Fish.Oceanography (TINRO), 19 pp., Russ. [*Analysis of horizontal distribution of temperature, salinity, dissolved oxygen, phosphate, silicate at the surface and near the bottom in 1987-1988 was made for the shelf zone of north-western part of the Japan Sea. A sharp subsurface front along coast was noted as a summer peculiarity of the region*.]
875. Radzikhovskaya M.A. (1952). Water and heat balance of the Japan Sea. Trudy TSIP, N 44, p.130-139, Russ.
876. Radzihovskaya M.A. (1961). Water masses of the Japan Sea. In: Stepanov V.N.(ed.) Basic Features of Geology and Hydrology of the Japan Sea. Moscow, USSR Academy of Sci. Publ.House, p.108-121, Russ. [*Using long-term average vertical gradients of temperature and salinity 3 water masses were identified: "surface Pacific" (temperature: 15-20°C, salinity: 34.0-34.5‰), "surface water mass of the Japan Sea" (temperature: 0-21°C, salinity: 32.0-34.0‰) and "deep water mass" (temperature: 0.1-0.5°C, salinity: 34.1-34.15‰). The quantity of the data is not given. The salinity of deep water mass is overestimated*.]
877. Radzihovskaya M.A. (1961). Water and heat balance of the Japan Sea. In: Stepanov V.N.(ed.) Main Features of Geology and Hydrology of the Japan Sea. Moscow, USSR Academy Sci. Publ.House, p.132-145, Russ. [*The water input through Tsushima Strait is determined in 52200 $km^3$ per year (100%), output through Tsugaru Strait- in 34600 $km^3$ (64 %), through LaPerouz Strait- 10380 $km^3$ (19 %), Tsushima Strait-7840 $km^3$ (15 %). The rains, river drain and evaporation give only 620 $km^3$ (1 %)*.]
878. Rakhmanova S.I. (1933). Plankton of Tartar Strait. Vestnik DVF, USSR Academy of Sciences, N 1-3, p.135-137, Russ.
879. Redkovskaya Z.P. (1979). Investigation of factors influencing the destruction of polluted matters in Peter the Great Bay. Trudy DVNIGMI, N 92, p.42-47, Russ.
880. Redkovskaya Z.P. (1980). On modern conditions of oxygen in the Japan Sea waters. Trudy DVNIGMI, N 92, p.54-58, Russ.
881. Redkovskaya Z.P. (1984). *ATLAS OF CHEMICAL CHARACTERISTICS OF THE JAPAN SEA*. Vladivostok, FERHRI, 210 pp., Russ.
882. Repechka M.A. (1973). Modern bottom sediments of the Japan Sea. In: Problems of Geology of the Japan Sea. Vladivostok, p.*, Russ.
883. Resnyanskii Yu.D., Zelen'ko A.A. (1996). The effects of short-term variations of atmospheric forcing in the thermal characteristics of the Japan Sea. Proc.Fourth CREAMS Workshop, Vladivostok, p.35-38.
884. Rikiishi K. (1984). Tidal fluctuation of the Tsugaru Warm Current as determined from the historical GEK observations. Abstracts of JECSS Meeting, p.287-300.
885. Rikiishi K., Michigami M., Araki T., Shiowaki K. (1997). Monitoring the outflow from the Sea of Japan by using a submarine cable across the Tsugaru Strait.Proc.Int.Symposium "Tsushima Warm Current", Pusan, p.53-63.
886. Riser S.C. (1996). The Oceanography of the Japan/East Sea. Manuscript. Honolulu, 23 pp.
887. Riser S.C., Warner M.J., Yurasov G.I. (1999). Circulation and mixing of water masses of Tartar Strait and the northwestern boundary region of the Japan Sea. J.Oceanography, v.55, N 2, p.133-156.
888. Ro Y.J. (1989). Interannual variability of sea water temperatures in the southern waters of the Korean East Sea. J.Oceanol.Soc.Korea, v.24, N 1, p.1-14.

889. Ro Y.J. (1990). Contribution of T-S EOF modes to geostrophical volume and heat transport through Korea Strait. Chungnam J.of Sciences, v.17, N 2, p.119-135.
890. Ro Y.J., Kim T.I., Sung H.K., Lee S.W. (1991). 3-d modelling of heat discharge from Uljin power plant into coastal waters of Korea East Sea. Proc.2-nd Int.Conf."Estuarine and coastal modelling", p.501-512.
891. Ro Y.J., Park M.J., Lee S.R., Lee J.C. (1995). Structures and variability of the T-S field and the current across the Korea Strait. J.Korean Soc.Oceanography, v.30, N 4, p.237-249.
892. Rodionov N.P. (1984). The Japan Sea. In: Pollution forecast of the USSR Seas. Leningrad, Gidrometeoizdat, p.118-150, Russ.
893. Rudovits L.F. (1927). The oceanographical investigations of Japan. Meteorologicheskii Vestnik, N 10, p.221, Russ. [*Brief abstract of S.Ogura (1927) paper*.]
894. Rudovits L.F. (1928). The proposal of oceanographic expedition at Far East. Meteorologicheskii vestnik, N 2, p.53, Russ.
895. Rudovits L.F. (1929). Oceanographical research in the Sea of Japan (1926-1928). B.of Pacific Committee, USSR Academy of Sciences, N 2, p.1-4, Russ.
896. Rudovits L.F. (1929). The fog of the northern Japan Sea. Zapiski po Gidrografii, v.56, p.164-167, Russ.
897. Rudovits L.F. (1934). M. Uda. Hydrological investigations of the Japan Sea in May-June of 1932. Zapiski po Gydrographii, N 2, p.138-145, Russ. [*Abstract of M. Uda (1934) paper*.]
898. Rumyantsev A.I. (1946). The capelin of the Japan Sea. Izvestiya TINRO, v.22, p.35-74, Russ.
899. Rumyantsev A.I. (1947). Saury of the Japan Sea. Izvestiya TINRO, v.25, p.53-65, Russ.
900. Rumyantsev A.I. (1951). New cases of the discovery of rare fishes. Izvestiya TINRO, v.35, p.185-186, Russ. [*Schemes of horizontal temperature and salinity distribution at 0, 10, 25, 50, 100, 200 m levels for each month were presented*.]
901. Rumyantsev A.I. (1951). *ATLAS OF MULTI-YEAR MEAN TEMPERATURE AND SALINITY OF THE JAPAN SEA.* Vladivostok, 73 pp., Russ.
902. Ryabov O. (1994). On a bottom water origin of the Japan Sea. Proc. CREAMS'94 Symposium, Fukuoka, p.91-94.
903. Rykov N.A. (1997). The situation with oceanographic data bases in the Japan Sea. Proc.Int.CREAMS Symposium, Fukuoka, p.293-296.

# S

904. Saitoh S., Ichikawa M., Okada K., Isoda Y. (1992). Satellite and moored buoy observations of Polar frontal system over the Yamato Rise in the Japan Sea. Proc.PORSEC-92, v.2, Okinawa, p.1016-1021.
905. Sakai S. (1984). Possible flow regimes for a flow driven by a prescribed inflow and outflow in a circular basin with reference to the Tsushima Current and the Kuroshio. In: Ichiye T.(ed.) Ocean Hydrodynamics of the Japan and East China Seas. Tokyo, Elsevier, p.155-165.
906. Sato K. (1950). On the potential temperature of bottom water in the Japan Sea. Hydrographic B., Sp.v, p.77-81, Jap.
907. Saveliev A.V. (1983). On influence of air pressure and wind on variations of mean sea level along the Primorye coast in the Japan Sea. Trudy DVNIGMI, N 100, p.83-86, Russ.
908. Saveliev A.V. (1997). Estimation of the total volume transport through the main straits of the Japan Sea by using sea level slopes. Proc.Int.CREAMS Symp., Fukuoka, p.303-307.
909. Saveliev A.V., Firsov P.B. (1996). A numerical model for storm surges at the coast of Peter the Great Bay. Proc.Fourth CREAMS Workshop, Vladivostok, p.191-196.
910. Savelieva N.I. (1989). A general scheme of Amur and Ussuri Bays water circulation from results of numerical modelling. Manuscript. Vladivostok, 28 pp., Russ.-

911. Schedrina Z.G. (1952). On distribution of foraminifera in the Japan Sea. Reports of USSR Academy of Science, v.87, N 3, p.*, Russ.
912. Scientific and Applied Reference Book on USSR Climate (1988). Ser.3, parts 1-6, N 26. Leningrad, Gydrometeoizdat, 416 pp., Russ. [*Climatic wind characteristics (mean and maximal velocity, direction of maximal wind, repetition) at 37 meteorological stations in Primorye region of Russia were presented.*].
913. Sekine Y. (1986). Wind-driven circulation in the Japan Sea and its influence on the branching of the Tsushima Current. Progr. Oceanography, v.17, N 3-4, p.297-312.
914. Sekine Y. (1988). On the seasonal variation in- and outflow volume transport of the Japan Sea. Progr. Oceanography, v.21, p.269-279.
915. Sekine Y. (1991). A numerical experiment on the seasonal variation of the oceanic circulation in the Japan Sea. In: Takano K.(ed.) Oceanography of Asian Marginal Seas. Tokyo, p.113-128.
916. Sekine Y. (1992). On a ocean circulation in the Japan Sea. Umi to sora, v.67, N 1, p.27-38, Jap.
917. Senjyu T., Isobe A. (1996). Preliminary observation at the eastern part of the Ulleung (Tsushima) Basin. Proc.Fourth CREAMS Workshop, Vladivostok, p.77-80.
918. Senjyu T., Isobe A., Kim K. (1996). The observation of deep convection in winter near Siberia. Proc. Autumn Meeting of Oceanographical Society of Japan,p.14-15,jap.
919. Senjyu T., Matsuyama M., Sudo H., Yamada H., Yoshida J., Kurita Y. (1992). The topographic effect on the density structure in upper part of the Japan Sea Proper Water near the Yamato Rise. Umi to sora, v.68, N *, p.1-12, Jap.
920. Senjyu T., Sudo H. (1993). Water characteristics and circulation of the upper portion of the Japan Sea Proper Water. J. Marine Systems, v. 4, N 4, p.349-362.
921. Senjyu T., Sudo H. (1994). Structure and circulation of the upper portion of the Japan Sea Proper Water. Proc.CREAMS'94 Symposium, Fukuoka, p.95-98.
922. Senjyu T., Sudo H. (1994). The upper portion of the Japan Sea Proper Water.It's source and circulation as deduced from isopycnal analyses. J. Oceanography, v.50, N 6, p.663-690.
923. Senjyu T., Sudo H. (1996). Interannual variation of the upper portion of the Japan Sea Proper Water and its probable cause. J. Oceanography, v.52, N 1, p.27-42.
924. Senjyu T.,Sudo H., Matsuyama M. (1994). Salinity minima in the Japan Sea. Proc. Third CREAMS Workshop, Seoul, p.37-41.
925. Serebryannyi A.N. (1987). Internal waves above the shelf close to the continental slope as indicated by data from towed distributed temperature sensor. Okeanologiya, v.27, N 2, p.225, Russ. [*Brief analysis of permanent measurements of water temperature near Primorye coast (place is not specified).*]
926. Seung Y.H. (1974). A dynamic consideration on the temperature distribution in the east coast of Korea in August. J. Oceanol. Soc. Korea, v.9, N 1-2, p.52-58, Kor.
927. Seung Y.H. (1984). A numerical experiment of the effect of coastline geometry on the upwelling along the east coast of Korea. J. Oceanol. Soc. Korea, v.19, N 1, p.24-30.
928. Seung Y.H. (1986). On the response of coastal water to the intensification of East Korea Warm Current along the east coast of Korea- a theoretical consideration. J. Oceanol. Soc. Korea, v.21, N 4, p.229-235.
929. Seung Y.H. (1988). An advection-diffusion model for the distribution of surface cold water near Ulgi (Ulsan), South-Eastern Korea. J. Oceanol. Soc. Korea, v.23, N 1, p.13-23.
930. Seung Y.H. (1988). Application of a simple buoyancy adjustment model to the Japan Sea. B. Korean Fish. Society, v.21, N 6, p.277-288.
931. Seung Y.H. (1992). A simple model for separation of East Korean Warm Current and formation of North Korean Cold Current. J. Oceanol. Soc. Korea, v.27, N 3, p.189-196.
932. Seung Y.H. (1992). Water masses and circulation around Korean peninsula. J. Oceanol. Soc. Korea, v.27, N 4, p.324-331, Kor.

933. Seung J.H. (1997). Application of the ventilation theory to the East Sea. J. Korean Soc. Oceanography, v.32, N 1, p.8-16.
934. Seung Y.H. (1992). Water masses and circulation around Korean peninsula. J. Oceanol. Soc. Korea, v.27, N 4, p.324-331, Kor.
935. Seung J.H. (1997). Application of the ventilation theory to the East Sea. J.Korean Soc.Oceanography, v.32, N 1, p.8-16.
936. Seung Y.H., Byun S.K. (1984). Measurements of storm-induced baroclinic motions along the east coast of South Korea. In: Ichiye T.(ed.) Ocean Hydrodynamics of the Japan and East China Seas. Tokyo, Elsevier, p.95-102.
937. Seing Y.H., Cho K.H. (1998). A note on the outflow boundary conditions in modeling the East Sea circulation. J. Korean Soc. Oceanography, v.33, N 4, p.212-218.
938. Seung Y.H., Kim K. (1989). On the possible role of local thermal forcing on the Japan Sea circulation. J. Oceanogr. Soc.Korea, v.24, N 1, p.29-38.
939. Seung Y.H., Kim K. (1993). A numerical modeling of the East Sea circulation. J. Oceanogr. Soc. Korea, v.28, N 4, p.292-304.
940. Seung J.H., Kim K.J. (1995). A multi-layer model for dynamics of upper and intermediate layer circulation of the East Sea. J. Korean Soc. Oceanography, v.30, N 3, p.227-236.
941. Seung J.H., Kim K.J. (1997). Estimation of the residence time for renewal of the East Sea Intermediate Water using MICOM. J. Korean Soc. Oceanography, v.32, N 1, p.17-27.
942. Seung Y.H., Nam S.Y. (1991). Effects of winter cooling on subsurface hydrographic conditions off Korean coast in the Japan Sea. In: Takano K.(ed.) Oceanography of Asian Marginal Seas. Ed.Takano K. Tokyo, p.163-178.
943. Seung Y.H., Nam S.Y. (1992). A two-layer model for the effect of cold water formation on the East Korea Warm Current. B. Korean Fish. Society, v.25, N 1, p.65-72, Kor.
944. Seung Y.H., Nam S.Y. (1992). A numerical study on the barotropic transport of the Tsushima warm current. La Mer, v.30, N 3, p.139-147.
945. Seung Y.H., Nam S.Y., Lee S.Y. (1990). A combined effect of differential cooling and topography on the formation of Ulleung warm eddy. B. Korean Fish. Society, v.22, N 6, p.375-384.
946. Seung Y.H., Yoon J.H. (1995). Some features of winter convection in the Japan Sea. J. Oceanography, v.51, N 1, p.61-74.
947. Seung Y.H., Yoon J.H. (1995). Robust diagnostic modelling of the Japan Sea circulation. J. Oceanography, v.51, N 4, p.421-440.
948. Shapkina V.F. (1959). Forecast of water temperature in areas of Kuroshio, Tsushima current and Primorye current. Trudy TSIP, N 91, p.18-50, Russ.
949. Shapkina V.F. (1963). The forecast of ice strength in Peter the Great Bay border. Trudy DVNIGMI, N 13, p.111-128, Russ.
950. Shcherbak V.A. (1979). Changes of hydrochemical conditions in shallow bays after rainfall. Izvestiya TINRO, v.103, p.133-136, Russ.
951. Shelegova E.K. (1955). Main features of oceanographic conditions in area of herring fishery at the South-Western Sakhalin coast. Manuscript, TINRO, * pp., Russ.
952. Shelegova E.K. (1958). Influence of the Japan Sea waters on thermal conditions and fishery of herring at the South-Eastern Sakhalin coast. B. Tech-Econ. Inf. Yuzhno-Sakhalinsk, N 5, * pp., Russ.
953. Shelegova E.K. (1960). The case of abrupt cooling in a summer at the South-Western Sakhalin coast. Izvestiya TINRO, v.46, p.249-251, Russ. [*In summer at south-western Sakhalin coast, surface water temperature sometimes- once a year (9.1949, 9.1950, 8.1951, 6.1952, 9.1953, 6.1954) is lowered by 10-15°C. The reason of it is the combination of off-shore winds and water transport from the Okhotsk Sea through LaPerouse Strait.*]

954. Sheremetevskaya O.I. (1988). Statistical analysis of the time of first ice appearance in the seas of Far-East Region. Trudy Gidrometcentra, N 292, p.124-129, Russ.
955. Shigematsu R. (1925). Results of oceanographical observation made on R/V Yamato in the Japan Sea in summer 1924. Hydrographic B., v.4, N 6, p.296-304, Jap.
956. Shigematsu R. (1932). On the dynamical investigations of the current in the Japan Sea. Hydrographic B., v.11, N 1, p.27-28, Jap.
957. Shim J.H., Lee W.H. (1987). Distribution of phytoplankton species and associated environmental factors in the southwestern waters of the East Sea (Sea of Japan), Korea: A canonical correlation analysis. J. Oceanol. Soc. Korea, v.22, N 1, p.34-42.
958. Shim J.H., Lee W.H., Park S.Y. (1985). Studies on the plankton in the southwestern part of the East Sea (Sea of Japan). J. Oceanol.Soc. Korea, v.20, N 3, p.37-54.
959. Shim J.H., Park S.Y. (1983). A biological-oceanographic study on the southern waters of Korea Eastern Sea. In: Oceanographic Studies on the Southern Waters of Korean Eastern Sea. Seoul, Seoul Nat. University, p.101-162.
960. Shim J.H., Park Y.C. (1986). Primary productivity measurement using C14 and nitrogenous nutrient dynamics in the southeastern Sea of Korea. J. Oceanol. Soc. Korea, v.21, N 1, p.13-24.
961. Shim J.H., Yang S.R., Lee W.H. (1989). Phytohydrography and the vertical patterns of nitracline in southern waters of the Korean East Sea in early spring. J. Oceanol. Soc. Korea, v.24, N 1, p.15-28.
962. Shim J.H., Yeo H.G., Park J.G. (1995). Primary production system in the southern waters of the East Sea, Korea. The structure of phytoplankton community. J. Korean Soc. Oceanography, v.30, N 3, p.163-169.
963. Shim T. (1995). Eddies and thermal front in the Donghae using both hydrographic and satellite data. Proc.8 JECSS/PAMS Workshop, p.80-81.
964. Shim T., Kim K. (1981). On the variation of the mixed layer depth and the heat flux in the Sea of Japan. J. Oceanol. Soc. Korea, v.16, N 2, p.49-56.
965. Shim T., Wiseman W.J., Huh O.K., Chuang W.S. (1984). A test of the geostrophic approximation in the western channel of the Korea Strait. In: Ichiye T.(ed.) Ocean Hydrodynamics of the Japan and East China Seas. Tokyo, Elsevier, p.263-272.
966. Shimomura T., Miyata K. (1953). On the oceanographic character of the low temperature region off Sado Island. B. Japanese Soc. Sci. Fisheries, v.19, N 4, p.424-428, Jap.
967. Shimomura T., Miyata K. (1957). Oceanographical conditions in the Japan Sea and its water masses in summer 1955. B. Japan Sea Reg. Fish. Res. Laboratory, N 6, p.23-97, Jap.
968. Shin C.W., Byun S.K., Kim C.S. (1996). Comparison between geostrophic currents and measured currents in the southwestern part of the East Sea. J. Korean Soc. Oceanography, v.31, N 2, p.89-96.
969. Shin C.W., Byun S.K., Kim C.S., Seung Y.H. (1998). Southward intrusion of the East Sea Intermediate Water into the Ulleung Basin: observations in 1992 and 1993. J. Korean Soc. Oceanography, v.33, N 4, p.146-156.
970. Shin H.R. (1994). Analysis of seasonal distribution of water masses in the Korea Strait and the East China sea. J. Korean Earth Science Society, v.15, N 2, p.81-90, Kor.
971. Shin H.R., Byun S.K., Kim C.S., Hwang S.C., Shin C.W. (1995). The characteristics of structure of warm eddy observed to the Northwest of Ullungdo in 1992. J. Korean Soc. Oceanography, v.30, N 1, p.39-56, Kor.
972. Shinozaki T., Tashiro A., Nagahama T., Ishii H., Omura K., Ouchi Y., Hashimoto Y., Kawatate K. (1996). Time variation of the current north-west of Tsushima. La Mer, v.34, N *, p.163-171.
973. Shirazawa *. (1927). On climatic condition of countries around the Japan Sea. Proc. Conference "Productive forces of Russian Far East area", N 2, p.117-120, Russ.

974. Shiryaev P. (1914). Results of deep oceanographic and zoological measurements, made on R/V "Okhotsk" during the 1913 cruise in the Japan and Okhotsk Seas. Zapiski po Gidrographii, v.38, N 4, p.621-627, Russ.
975. Shmidt P.Yu. (1904). Fishes of Eastern Seas of Russian Empire. Saint-Petersburg, 466 pp., Russ.
976. Shmidt P.Yu. (1905). Fisheries of Sakhalin. Sain-Petersburg, 458 pp., Russ.
977. Shmidt P.Yu. (1945). The problem of Far Eastern sardines. In: Fisheries of USSR. Moscow, Pischepromizdat, N 1, p.4-13, Russ.
978. Shmidt P.Yu., Taranets A.Ya. (1934). On new southern elements in fauna of the northern Japan Sea. Doklady Akademii nauk SSSR, v.11, N 9,p.*, Russ.
979. Shoji D. (1961). On the variations of the daily mean sea levels along the Japanese Islands. J. Oceanogr. Soc. Japan, v.17, N 3, p.141-152.
980. Shoji D., Iwasa K., Hasuike K., Masumoto T. (1971). Study on oceanographic structure in the Japan Sea and its influence on weather condition and biological productivity. In: Papers of the Composite Studies on the Japan Sea in 1969 Fiscal Year, Tokyo, p.11-27, Jap.
981. Shrenk L.I. (1869). Notes on Physical Geography of the Northern Japan Sea. Mem. Russ. Imper. Academy of Science, Suppl. to v.16, N 3, 254 pp., Russ. [*General characteristics of shores, relief, water temperature and salinity northward from Tumen River to Tsushima Strait were presented. Currents are considered in details by the data of ships' drift and temperature distribution. First general scheme of the Japan Sea water circulation was proposed. Data of maximal tides are presented. Temperature, salinity and density distribution on sea surface were characterized in general.*]
982. Shrenk L.I. (1874). On the Currents of the Okhotsk and Japan Sea and Bordering Seas. Mem. Russ. Imper. Academy of Science, Suppl. to v.18, N 3, 112 pp., Russ. [*"Kuril Current", "East-Sakhalin Current", "Tsushima Current", "Primorye Current" were identified and a general scheme of water circulation in North-Wast Pacific Seas was described on the base of sea surface temperature distribution. Considerable seasonal variations of currents in the Japan Sea was noticed.*]
983. Shuntov V.P. (1967). Saury of the Japan Sea. Izvestiya TINRO, v.56, p.51-56, Russ.
984. Shuntov V.P. (1993). Functional structure of walleye pollock area in the Japan Sea. Marine Biology, N 2, p.7-22, Russ.
985. Shuto K. (1982). A review of sea conditions in the Japan Sea (1). Umi to sora, v.57, N 2-3, p.157-169, Jap.
986. Shuto K. (1982). A review of sea conditions in the Japan Sea (2). Umi to sora, v.57, N 4, p.171-186, Jap.
987. Shuto K. (1982). A review of sea conditions in the Japan Sea. La Mer, v.20, Sp.N, p.119-124.
988. Sizova Yu.V. (1961). Water circulation of the Japan Sea. In: Stepanov V.N.(ed.) Basic Features of Geology and Hydrology of the Japan Sea. Moscow, USSR Academy of Sciences, p.146-154, Russ. [*The schemes of geostrophical currents are average (for many years) fields of temperature and salinity. Their quantity and distribution is not given. The schemes of surface currents (winter, spring and summer) are given for the surface and level of 100 m.*]
989. Skokleneva N.M. (1980). Seasonal variability of hydrochemical conditions of Possiet Bay. In: Fisheries Investigations of Moderate Waters of Russian Far East Region. Vladivostok, p.9-14, Russ.
990. Skokleneva N.M., Pak M.P., Gogoleva N.M. (1985). Hydrochemical features of shallow part of Peter the Great Bay. Izvestiya TINRO, v.110, p.145-150, Russ. [*An analysis of seasonal variability of temperature, salinity, pH, dissolved oxygen, organic carbon, nutrients in two small bays of Peter the Great Bay in July-October of 1983. Temperature decreased and salinity increased (up to 32‰) and pH was stable in an autumn. Oxygen was stable also: 100-130% in surface layer, 70-95%- near bottom. Nutrients were exhausted in summer and*

*increased in autumn, in the inner parts of bays especially. Carbon content was low in summer and decreased from early September, when phytoplankton destruction began.*]

991. Skokleneva N.M., Vinokurova T.T. (1981). Monthly variability of hydrometeorological characteristics in the near-shore area of Possiet Bay (the Japan Sea). Izvestiya TINRO, v.105, p.26-33, Russ.
992. Skornyakova N.S. (1961). Bottom sediments. In: Stepanov V.N.(ed.) Basic Features of Geology and Hydrology of the Japan Sea. Moscow, USSR Academy of Sciences, p.23-34,russ.
993. Sokolova S.E., Rabinovich A.B., Chu K.S. (1992). On the atmosphere-induced sea level variations along the western coast of the Sea of Japan. La Mer, v.30, N 3, p.191-212.
994. Soloviev N.M. (1927). Maps of Russian Far Eastern area. Proc. Conference "Productive Forces of Russian Far Eastern Area", N 2, p.3-21, Russ.
995. Son'kin L.P. (1961). On some natural laws of winter synoptical processes over Far Eastern Seas. Meteorologiya i Gidrologiya, N 6, p.21-27, Russ.
996. Sorokin Yu.I. (1974). Vertical structure and microplankton production in a summer in the Japan Sea. Okeanologiya, v.14, N 2, p.327-334, Russ.
997. Stakhevich V. (1915). Information about tides of the East Ocean. Zapiski po Gidrografii, v.39, N 3, p.366-388, Russ.
998. Stakhevich V. (1925). Information on tides of the East Ocean. Zapiski po Gidrografii, v.49, N*, p.*, Russ.
999. Stakhevich V. (1930). Information on tides of the East Ocean. Zapiski po Gidrografii, v.60, N*, p.*, Russ.
1000. Staritskii * (1873). On modern condition of the Japan Sea hydrography. Izvestiya Russkogo Geographicheskogo Obschestva, * pp., Russ.
1001. Stepanov V.N. (1961). General characteristic of hydrology of the Japan Sea. In: Stepanov V.N.(ed.) Basic Features of Geology and Hydrology of the Japan Sea. Moscow, USSR Academy of Sciences, p.102-107, Russ. [*Introduction to monography and brief description of it.*]
1002. Stepanov V.V. (1976). Water temperature and salinity in Vostok Bay (The Japan Sea). In: Biological investigations of the Vostok Bay. Vladivostok, Far Eastern Branch USSR Academy of Sciences, p.12-22, Russ.
1003. Stolyarova G.A. (1963). On the problem of forms and unity of ice in Tartar Strait. Trudy DVNIGMI, N 13, p.129-138, Russ.
1004. Stolyarova G.A. (1974). Influence of water temperature on ice cover formation in Tartar Strait. Trudy DVNIGMI, N 45, p.46-53, Russ.
1005. Stolyarova G.A. (1975). To the problem of ice unity in Tartar Strait. Trudy DVNIGMI, N 50, p.33-37, Russ.
1006. Stolyarova G.A. (1975). On the influence of water mass advection on the ice-covering of Tartar Strait. Trudy DVNIGMI, N55, p.45-50, Russ. [*Data collected in October of 1962, 1966-1970 along a section on 47.3°N in Tartar Strait. Geostrophic currents calculated relative to 400 db. Conclusions: water transport through Tartar Strait is about 2.2 Sv; in years with big water transport the volume of ice in the Strait grows; the water transport in the Strait on 0.2-0.8 Sv IS MORE, than transport from the Strait (it was not explained).*]
1007. Stremousov N.V. (1935). On problem of synoptic processes of the eastern Asia continent and bordering seas. Geophizika, v.5, N 2, p.*, Russ.
1008. Structures and facii of the Japan Sea (1983). Vladivostok, Far Eastern Branch of USSR Academy of Sciences, 287 pp., Russ.
1009. Stunzhas P.A., Yurasov G.I., Sviridova I.V. (1980). Main results of hydrological and hydrochemical works in the Japan Sea and nearest Pacific regions (R/V "Vityaz" 59 cruise). In: Investigations of the Japan Sea Plankton. Moscow, p.7-14, Russ.

1010. Suda K. (1932). On the bottom water of the Japan Sea. J. Oceanography,v.4, N 1, p.221-240, Jap.
1011. Suda K. (1936). On the dissipation of energy in the density current. Geophysical Magazine, v.10, N 2, p.131-243, Jap.
1012. Suda K. (1938). Annual variation of the Tsushima Current. J. Limnol. Soc. Japan, v.8, N 3-4, p.205-215, Jap.
1013. Suda K., Hidaka K. (1932). The results of the oceanographic observations on board RMS "Syunpu maru" in the southern part of the Japan Sea in summer of 1929.Part 1. J. Oceanography, v.3, N 2, p.291-375, Jap.
1014. Suda K., Hidaka K. (1932). The results of the oceanographic observations on board RMS "Syunpu maru" in the principal part of the Japan Sea in summer of 1930. J. Oceanography, v.4, N *, p.1-174, Jap.
1015. Suda K., Hidaka K., Matsudaira Y., Kawasaki H., Kurasige A., Kubo T. (1932). The results of the oceanographical observations on board R.M.S. "Syunpu maru" in the principal part of the Japan Sea in the summer of 1930. J. Oceanography, v.4, N 1, p.1-173, Jap.
1016. Suda K., Hidaka K., Matsudaira Y., Takahata T. (1930). The results of the oceanographical observations on board R.M.S. "Syunpu maru" in the southern part of the Japan Sea in the summer of 1928. Part 1. J. Oceanography, v.2, N *, p.1-73, Jap.
1017. Sudo H. (1986). A note of the Japan Sea Proper Water. Progr. Oceanography., v.17, N 3-4, p.313-336.
1018. Sudo H. (1995). Temperature-salinity frequency distribution of the upper 10m of the Japan Sea. La Mer, v.33, N 1, p.13-35.
1019. Sugimoto T. (1990). A review of recent physical investigations in the straits around the Japanese Islands. In: Pratt L.(ed.) The Physical Oceanography of the Sea Straits. Kluver Academic Press, p.191-209.
1020. Sugimoto T., Kawasaki Y. (1984). Seasonal and year-to-year variations of the Tsugaru Warm Current and their dynamical interpretation. B. Coastal Oceanography, v.22, N *, p.1-11, Jap.
1021. Sugimoto T., Tameishi H. (1992). Warm core rings, streamers and their role on the fishing ground formation around Japan. Deep Sea Research, v.39, Suppl. N, p.183-201.
1022. Sugimura T., Tanaka S., Hatekeyama Y. (1984). Surface temperature and current vectors in the Sea of Japan from NOAA-7 AVHRR data. Proc. Remote sensing shelf sea hydrology, v.38, p.133-147.
1023. Sugiura Y. (1969). On the oxygen-minimum layer in the oceans. La Mer, v.7, N 2, p.161-167.
1024. Sugiura Y., Yamamoto K. (1968). The distribution of iron and aluminium in sea water of the Japan Sea and its oceanographical significance. La Mer, v.6, N 3, p.177-189, Jap.
1025. Sugiura Y., Yamamoto K. (1969). The distribution of iron and aluminium in sea water of the Japan Sea and its oceanographical significance. 2. The relation of the Japan Sea with the East China Sea and Okhotsk Sea. La Mer, v.7, N 4, p.249-253, Jap.
1026. Suk M.S. (1988). Application of a variational inverse model to determine a winter circulation in the East Sea of Korea. Progr. Oceanography, v.21, N 3-4, p.281-293.
1027. Sukhovey V.F. (1986). The Japan Sea. In: Seas of the World Ocean. Leningrad, Gidrometeoizdat, p.154-161.
1028. Sumida T. (1935). On storm tides caused by the typhoon of the last 10-days of August 1935. Umi to sora, v.15, p.*, Jap.
1029. Sung K.T., Lim K.B., Lee S.C. (1993). The distribution of currents in Yongil Bay. B. Fish. Res. Develop. Agency, N 47, p.1-7.
1030. Supranovich T.I. (1989). Maximum and mean velocity of currents in the surface layer of Tartar Strait. Trudy DVNIGMI, N 39, p.34-36, Russ. [*The distribution of current velocities in Tartar Strait were examined using base measurements in 1976-1978. Maximal velocities*

*were observed in Nevelskoy Strait (3.6 kt) and in La Perouse Strait (2.4 kt). In Tartar Strait highest velocity occurs near Syurkum Cape (1.8 kt). Mean velocity is about 30% of the maximal one. 85-90% of currents speed has a tidal origin.*]

1031. Supranovich T.I., Nechayuk T.T., Chupakhina T.N. (1989). Some problems of tidal wave dynamics on the shelves of the Okhotsk and Japan Seas. Trudy DVNIGMI, N 39, p.22-27, Russ. [*On 4 stations in a Tartar Strait the orbits of water particles in tidal wave are constructed. The conclusion is made that tidal waves in the Strait (both the daily and prevailling half-daily) are distributed from the south to north.*]
1032. Supranovich T.I., Chupakhina T.N., Nechayuk T.T. (1989). Cotidal charts of the main tidal waves of the Japan Sea. Trudy DVNIGMI, N 39, p.28-33, Russ.
1033. Sverdrup H.U., Johnson M.W., Flemming R.H. (1942). Japan Sea. In: The Oceans: Their Physics, Chemistry and General Biology. New York., Prentice Hall, p.734-735.

**T**

1034. Tabata K. (1972). Submarine topography and bottom characters of Yamato Rise, the Sea of Japan. B. Japan Sea Res. Institute, N 4, p.57-69, Jap.
1035. Tagats V.A. (1933). Some data on zooplankton of Patrokl Bay in summer 1926. In: Investigations of USSR Seas, N 19, p.59-71, Russ.
1036. Taguti T. (1932). Preliminary report on the oceanographical states of the northern Japan Sea. J. Oceanography, v.4, N 1, p.*, Jap.
1037. Taira K. (1997). Application of the ARGOS system to NEAR-GOOS. ARGOS Newsletter, N 52, p.13-15.
1038. Takano K., Endo S. (1985). A numerical simulation of the Japan Sea. Abstracts of Reports at 3-rd JECSS Workshop, Tsukuba. Manuscript, 1 pp.
1039. Takematsu M. (1991). The ocean circulation in the East Sea. Proc. Symposium on the Sea between Korea and Japan, Seoul, p.11-14.
1040. Takematsu M. (1994). CREAMS plan and Japan Sea studies. Kaiyo Monthly, v.26, N 12, p.745-746, Jap.
1041. Takematsu M.,Hase H,Nagano Z., Kita T. (1996). Moored Instrument Observations in the Japan Sea Proper Water. Proc. Fourth CREAMS Workshop, Vladivostok, p.101-105.
1042. Takematsu M., Kita T. (1991). A drivimg mechanism of the Tsushima Current. Rep. RIAM, Kyushu University, v.38, N 108, p.49-59.
1043. Takematsu M.,Ostrovskii A.G., Kitamura T. (1994). Current features in the Japan Sea Proper Water. Proc. Third CREAMS Workshop, Seoul, p.1-4.
1044. Takematsu M., Volkov Yu., Kim K., Kim K.R. (1996). Water masses and their vertical structure in the East (Japan) Sea. New findings from CREAMS. EOS Transactions, v.77, N 46, p.343.
1045. Takematsu M., Yoon J.H., Kim C.H., Nagano Z. (1996). A study on the circulation of the water and the materials in the Japan Sea. B. RIAM, Kyushu University, v.80, p.1-9, Jap.
1046. Takizawa T. (1982). Characteristics of the Soya Warm Current in the Okhotsk Sea. J. Oceanogr. Soc. Japan, v.38, p.281-292.
1047. Takizawa T., Aota M. (1978). Observations of the Soya Warm Current and currents in the Okhotsk Sea by drifters. Low Temperature Science, ser. A, N 36-37, p.71-76, Jap.
1048. Tameishi H. (1987). Application of satellite NOAA images for fisheries. B. Japanese Soc. Fish. Oceanography, v.51, N 3, p.238-244, Jap.
1049. Tamiya Y. (1955). Observation of the currents in the Japan Sea with drift bottles. Hydrographic B., v.17, p.13-21, Jap.
1050. Tanaka Y., Tsuda R., Kimoto T., Harashima A. (1997). Seasonal variations in the biochemical properties in the Tsushima Strait revealed by Japan-Korea ferry. Proc. Int. Symposium "Tsushima Warm Current", Pusan, p.89-103.

1051. Tanfiliev G.I. (1931). THE SEAS. Moscow-Leningrad, State Sci.-Techn. Publ. House, p.223-247, Russ.
1052. Tanioka K. (1962). The oceanographical conditions of the Japan Sea. 1. On annual chlorinity cycle. Umi to sora, v.38, N 3, p.90-100, Jap.
1053. Tanioka K. (1962). The oceanographical conditions of the Japan Sea. 2. Warm, cold and salt waters in the Japan Sea. Umi to sora, v.38, N 4, p.115-128, Jap.
1054. Tanioka K. (1963). The oceanographical conditions of the Japan Sea. 3. On the relation between the oceanographical condition and sea level. Umi to sora, v.39, N 3, p.91-96, Jap.
1055. Tanioka K. (1966). Oceanographical conditions of the Japan Sea (4). On the vertical section across Tosen Warm Current. Umi to sora, v.41, N 1-2, p.50-57, Jap.
1056. Tanioka K. (1968). On the East Korean Warm Current (Tosen Warm Current). The Oceanogr. Magazine, v.20, N 1, p.31-38.
1057. Tanioka K. (1973). On the relationship between the oceanographic conditions and the sea level in the Japan Sea. Umi to sora, v.49, N 1-2, p.57-64, Jap.
1058. Tanioka T. (1940). The chaetognatha fauna of the waters of western Japan. Rec. Oceanogr. Works in Japan, v.12, N 1, p.1-22, Jap.
1059. Taranets A.Ya. (1938). On new records of southern elements in ichtiofauna of the north-western Japan Sea. Vestnik DVF AN SSSR, N 28, p.113-130, Russ.
1060. Tarasov N.M. (1929). On hydrobiologic works of southern group of Pacific expedition in 1929. Izvestiya GOIN, N 25, p.116-118, Russ.
1061. Tarasov N.M. (1931). On works of the southern group of the Pacific expedition in the summer of 1930. Izvestiya GOIN, N 33, p.43-49, Russ.
1062. Tarasov N.M. (1932). On of Pacific expedition in 1931. Izvestiya GOIN, N 52, p.52-55, Russ.
1063. Tarasov N.M. (1940). The Japan Sea. Morskoi Sbornik, N 8, p.50-79, Russ.
1064. Tashiro A., Shinozaki T., Moriyama H., Yanagida M., Hiwatashi K., Ishii H., Nagahama T., Hashimoto Y., Kawatate K. (1997). A cable voltage measurement for estimating volume transport between Nogita and Ashibe. Acta Oceanographica Taiwanica, v.36, N 1, p.25-32.
1065. Tawara S., Fujiwara T. (1985). Sea surface temperature distribution and its variability across the Tsushima Strait. J. Oceanogr. Soc. Japan, v.41, N 1, p.49-55.
1066. Tawara S., Fujiwara T., Miita T. (1991). Short-term variability of sea surface temperature in the East Channel of Korean Strait. Umi to sora, v.66, N 4, p.211-223, Jap.
1067. Tawara S., Miita T., Fujiwara T. (1984). Oceanographical structure and its variabilities in the Tsushima Strait. B. Coastal Oceanography, v.22, N *, p.50-58, Jap.
1068. Tchalysheva N.P. (1957). The redistribution of the heat by currents in the Japan Sea. Trudy GOIN, p.102-118, Russ.
1069. Tchalysheva N.I. (1960). On water mass indices. Izvestiya Akademii nauk SSSR, ser. Geography, N 5, p.119-123, Russ.
1070. Tchernia P. (1992). Circulation in the Inland seas of the northwest Pacific. In: Descriptive Regional Oceanography, Oxford, Pergamon Press, p.237-239.
1071. Terada *. (1934). On bathymetrical features of the Japan Sea. B. Earth. Res. Institute, v.12, N 4, p.*, Jap.
1072. Teramoto T. (1972). History of Japanese observation program of the Kuroshio and adjacent regions. In: Stommel H., Yoshida K.(eds.) Kuroshio.Its Physical Aapects. Tokyo, Tokyo Univ. Press, p.409-432.
1073. Tkalin A.V. (1992). Present status of the Japan Sea chemical pollution: An overview. La Mer, v.30, N 1, p.1-4.
1074. Tkalin A.V. (1992). Bottom sediment pollution in some coastal areas of the Japan Sea. Ocean Research, v.14, N 2, p.71-76.
1075. Tkalin A.V. (1995). Investigation of marine environment radioactivity in the dumping areas and coastal zone of the Sea of Japan. Arctic Research of the United States, v.9, p.88-89.

1076. Tkalin A.V. (1996). Chlorinated hydrocarbons in coastal bottom sediments of the Japan Sea. Environmental Pollution, v.91, p.183-185.
1077. Tkalin A.V., Lishavskaya T.S., Veretshak A.A. (1996). Persistent organochlorines in the Japan (East) Sea. Ocean Research, v.18, N 2, p.159-163.
1078. Tkalin A.V., Shapovalov E.N. (1991). Influence of typhoon Judy on chemistry and pollution of the Japan sea coastal waters near the Tumangan river mouth. Ocean Research, v.13, N 2, p.95-101.
1079. Tkalin A.V., Shapovalov E.N., Ko Z.B. (1991). Pollution of coastal waters of KPDR. Meteorologiya i Gidrologiya, N 3, p.81-85, Russ. [*Hydrochemical data obtained by a Soviet-North Korean joint cruise in the vicinity of Tumen River estuary of the Sea) was analysed. Organic and heavy metal pollution generated by river discharge were limited by local near-coast zone of 5-10 miles and thin surface layer even in the period of summer floods*.]
1080. Toba Y., Kawamura H., Yamashita F., Hanawa K. (1984). Structure of horizontal turbulence in the Japan Sea. In: Ichiye T.(ed.) Ocean Hydrodynamics of the Japan and East China Seas. Tokyo, Elsevier, p.317-332.
1081. Toba Y., Tomizawa Y., Kurasawa Y., Hanawa K. (1982). Seasonal and year-to-year variability of the Tsushima-Tsugaru warm current system with its possible cause. La Mer, v.20, Sp.N, p.41-51.
1082. Toda T. (1980). A present conditions of the Japan Sea waters. Umi-no kise, v.26, p.1-7, Jap.
1083. Tokarev A.K. (1948). Scomber of the Japan Sea. Rybnoye Khozyaistvo, N 6, p.43-47, Russ.
1084. Tomczak M., Godfrey J.S. (1994). The Japan Sea. In: Regional oceanography. An Introduction. London, Pergamon Press, p.79-184.
1085. Tomizawa K., Hanawa K., Kurasawa Y., Toba Y. (1984). Variability of monthly mean sea level and its regional features around Japan and Korea. In: Ichiye T.(ed.) Ocean Hydrodynamics of the Japan and East China Seas. Tokyo, Elsevier, p.273-285.
1086. Tomosada A., Naganuma K. (1986). Abnormal sea conditions in Kuroshio area and Warm Tsushima Current. B. Japanese Soc. Fish. Oceanography, v.50,N 2, p.128-132, Jap.
1087. Tosya M. (1973). Heat balance of the Japan Sea. Mar. Meteorol. Research, v.115, p.227-302, Jap.
1088. Tsuji Y. (1986). Comparison of observed and numerically calculated heights of the 1983 Japan Sea tsunami. Sci. Tsunami Hazards, v.4, p.91-110.
1089. Tsujita T. (1954). Some theoretical considerations on the ecosystem in the Warm Tsushima Current (1). J. Oceanogr. Soc. Japan, v.10, N 3, p.132-157, Jap.
1090. Tsujita T. (1954). On the observed oceanographic structure of the Tsushima fishing grounds in winter and ecological relationship between structure and fishing conditions. J. Oceanogr. Soc. Japan, v.10, N 3, p.158-170, Jap.
1091. Tsujita T. (1979). Environmental characteristics related to biological production in the Sea of Japan with regard to fisheries. Proc.7-th Japan-Soviet Joint Symp.Aquaculture. Tokyo, p.241-249.
1092. Tsukuda K. (1937). On the surface temperature of the neighbouring seas of Japan. Mem. Kobe Marine Observatory, v.6, N 3, p.239-257.
1093. Tsunogai S., Watanabe Y.W., Harada K., Watanabe S., Saito S., Nakajima M. (1993). Dynamics of the Japan Sea Deep Water studied with chemical and radiochemical tracers. In: Teramoto T.(ed.) Deep Ocean Circulation. Physical and Chemical Aspect. Tokyo, Elsevier, p.105-120.

# U

1094. Uda M. (1930). On the distributions of color of the sea and transparency in the neighboring seas of Japan and their annual variations. Umi to sora, v.10, N 8, p.173-180, Jap.
1095. Uda M. (1931). Hydrographical investigation of Wakasa Bay and its adjacent seas. J. Imp. Fish. Exp. Station, v.2, p.17-35, Jap.
1096. Uda M. (1931). On the monthly oceanographical charts of the adjacent seas of Japan, based on the averages for the thirteen years from 1918 to 1930 with a discussion of the current system inferred from these charts(Part 2: from January to June). J. Imp. Fish. Exp. Station, v.2, p.59-81, Jap.
1097. Uda M. (1932). Hydrographical investigations in the seas adjacent to Wakasa Bay. Rec. Oceanogr. Works in Japan, v.4, N 1, p.1-29.
1098. Uda M. (1934). The results of simultaneous oceanographical investigations in the Japan Sea and its adjacent waters in May and June 1932. J. Imp. Fish. Exp. Station, v.5, p.57-190, Jap.
1099. Uda M. (1934). Hydrographical studies based on simultaneous oceanographical survey made in the Japan Sea and its adjacent waters during May-June 1932. Rec. Oceanogr. Works in Japan, v.6, N 1, p.19-107.
1100. Uda M. (1934). Hydrographical researches on the normal monthly conditions in the Japan Sea,the Yellow Sea and the Okhotsk Sea. J. Imp. Fish. Exp. Station, v.5, p.191-236, Jap.
1101. Uda M. (1936). Results of simultaneous oceanographical investigations in the Japan Sea and its adjacent waters during October and November 1933. J. Imp. Fish. Exp. Station, v.7, p.91-151, Jap.
1102. Uda M. (1936). Distribution of drifting bodies in the ocean current. B. Japanese Soc. Sci. Fisheries, v.4, N 5, p.289-293, Jap.
1103. Uda M. (1938). On the origin of the deep water masses in the seas adjacent to Japan. J. Limnol. Soc. Japan, v.8, N 3-4, p.195-204, Jap.
1104. Uda M. (1952). On the hydrographical fluctuation in the Japan Sea. B. Japan Sea Reg. Fish. Res. Laboratory, Sp. N, p.291-300, Jap.
1105. Uda M.,Kishi A., Nakao T. (1977). Cyclonic cold eddies along the edge of the Kuroshio. J. Fac. Marine Sciences, Tokai University, N 10, p.17-30.
1106. Uda M., Okamoto G. (1930). On the monthly oceanographical charts of the adjacent seas of Japan, based on the averages for the eleven years from 1918 to 1929 (Part 1: from July to December). J. Imp. Fish. Exp. Station, v.1, p.39-55, Jap.
1107. Uda M., Okamoto G. (1936). Effect of oceanographic conditions on "iwashi" (sardine) fishing in the Japan Sea. J. Imp. Fish. Exp. Station, v.7, p.19-49, Jap.
1108. Uda M., Watanabe N. (1933). Hydrographical researches on the normal monthly conditions of the Seto-Nankai. J. Imp. Fish. Exp. Station, v.3, p.137-164, Jap.
1109. Umatani S., Masunaga N., Yamagata T. (1986). Further study of synoptic variability in Wakasa Bay. Progr. Oceanography, v.17, N 3-4, p.359-373.
1110. Uranov E.N. (1968). The forecast of interannual fluctuations of water thermal conditions off the South-Western coast of Sakhalin. Izvestiya TINRO, v.65, p.212-220, Russ. [*8-year's periodicity in variation of surface water temperature at Sakhalin coast was identified.*]
1111. Uranov E.N. (1971). The forecasting of interannual fluctuations of water thermal conditions off the South-Western coast of Sakhalin. Izvestiya TINRO, v.75, p.103-105, Russ.

# V

1112. Vapnyar D.U., Pokudov V.V. (1961). On the prospect of improving of the Primorye climate. Meteorologiya i Gidrologiya, N 3, p.42-45, Russ.
1113. Varetskaya.F. (1991). Classification of types of acoustic structure of the Japan Sea by automatic classification method. Meteorol.i Gidrologiya, N 7, p.154-160, Russ. [*Vertical profiles of*

*sound velocity are calculated by Del-Grosso method for 2328 stations of 1988-1990. Profiles for every month were classified.*]

1114. Varlamov S.M., Kim Y.S., Dashko N.A., Ushakova R.N. (1996). Analysis of climate change tendency in the East Sea (Japan) Sea area. Proc.Fourth CREAMS Workshop,Vladivostok, p.17-21.
1115. Varvarin I.A. (1946). Greasing herring of southern part of Tartar Strait. Izvestiya TINRO, v.22, p.3-34, Russ.
1116. Vasiliev A.S., Dudka K.V. (1994). On the water exchange between the Okhotsk and the Japan Seas. Meteorologiya i Gidrologiya, N 10, p.56-64, Russ. [*Experiments on calculation of currents in the northwestern Pacific Ocean. Initial data: averaged long-term field of salinity and Japanese decade fields of air pressure and surface temperature. Grid: 0.25 x 0.5 degrees. The good conformity to the charts with (not clear - what) of the book Yurasov-Yarichin was declared.*]
1117. Vasilyev A.S., Makashin V.P. (1991). Ventilation of the Japan Sea waters in winter. Meteorologiya i gidrologiya, N 1, p.71-79, Russ. [*Integral water circulation in the Japan Sea was made on the base of data obtained in spring of 1974. Stream lines have not common features with other well-known schemes. For example, the Tsushima Current was not revealed. The possibility of deep water formation at Primorye shelf during ice freezing was discussed.*]
1118. Vasiliev A.S., Makashin V.P. (1992). Ventilation of the Japan Sea waters in winter. La Mer, v.30, N 3, p.169-177.
1119. Vasyukova N.G. (1963). On the coefficient of turbulent temperature conductivity in the Japan Sea. Transactions of USSR Academy of Sciences, ser. Geophysics, N 8, p.1259-1269, Russ.
1120. Vedenskii A.P. (1949). The experience of search of *Theragra chalcogramma* by floating eggs. Izvestiya TINRO, v.29, p.35-49, Russ.
1121. Vedenskii A.P. (1951). Materials on biology of scomber of the Japan Sea. Izvestiya TINRO, v.34, p.47-66, Russ.
1122. Vedenskii A.P. (1971). On locality and peculiarity of spawning *Theragra* formation in the western Japan Sea. Izvestiya TINRO, v.79, p.42-57, Russ.
1123. Velikanov A.Ya. (1980). Distribution and some features of *Mallotus vollosus socialis* of Tartar Strait in spring. Izvestiya TINRO, v.104, p.128-133, Russ.
1124. Veselova L.E. (1963). Some peculiarities of water thermal conditions at south-western coast of Sakhalin. Trudy DVNIGMI, N 13, p.42-63, Russ.
1125. Veselova L.E. (1963). Peculiarities of thermal conditions of Aniwa Bay and Terpeniya Bay. Trudy DVNIGMI, N 13, p.3-41, Russ.
1126. Vinogradov M.E. (1946). On geographic distribution of Kamchatka crab. Izvestiya TINRO, v.22, p.195-232, Russ.
1127. Vinogradov M.E. (1960). On the plankton of deep layers of the Japan Sea. Zoological Journal, v.39, N 4, p.500-508, Russ.
1128. Vinogradova E.G. (1954). Hydrochemical description of the South-western Okhotsk Sea. In: Works of Kuril-Sakhalin Cooperative ZIN-TINRO Expedition, v.1, p.413-434, Russ.
1129. Vinokurova T.T. (1977). Seasonal and short-period variations of hydrological characteristics in Peter the Great Bay. Izvestiya TINRO, v.101, p.7-12, Russ.
1130. Vinokurova T.T., Skokleniova N.M. (1980). Temporal variability of the hydrological conditions in Possiet Bay. Izvestiya TINRO, v.104, p.29-35, Russ.
1131. Virketis M.A. (1941). Quantity data on the Japan Sea plankton (Peter the Great Bay). In: Investigatyion of the USSR Seas. Moscow, USSR Academy of Sciences, N 1, p.37-52, Russ.

1132. Vise V.Yu. (1923). Sea surface water temperature in the Japan Sea by Japanese investigations. Izvestiya Tcentral'nogo Gydrometbyuro, N 2, p.44-47, Russ.
1133. Vladimirskii N.P. (1927). The investigation of geographical conditions (climate, oceanography) of the Far Eastern Seas. Proc. Conference "Productive forces of Russian Far East area", N 2, p.61-64 (+4 figs), Russ.
1134. Volkov A.F., Chuchukalo V.I. (1985). A seasonal changes of the Japan Sea mesoplankton (1949-1969). In: The Herring og the Northern Pacific Ocean. Vladivostok, TINRO, p.140-146, Russ.
1135. Volova G.N. (1985). Bottom biocenosises of Amurskii Bay (the Japan Sea). Izvestiya TINRO, v.110, p.111-119, Russ.
1136. Voronkov P.P. (1941). Hydrochemical conditions of Peter the Great Bay. In: Problems of Marine Chemistry, Leningrad, Gidrometeoizdat, p.42-102, Russ.
1137. Vyshkvartsev D.I., Lebedev E.B. (1997). Project of economic development of the Tumangan river area- the threat for the ecosystem of shallow bays of Possiet Bay (the Japan Sea). Marine Biology, v.23, N 1, p.51-55.

# W

1138. Wada Y., Yamada H. (1997). Flow patterns in Wakasa Bay, Japan Sea. B. Japan Sea Natl. Fish. Res. Institute, N 47, p.1-12, Jap.
1139. Wakatsuchi M. (1996). A possible location of sinking for the Japan Sea Bottom Water formation. Proc. Fourth CREAMS Workshop, Vladivostok, p.57-61.
1140. Wakatsuchi M., Ohshima K.I. (1990). Observations of ice-ocean eddy streets in the Sea of Okhotsk off the Hokkaido coast using radar images. J. Phys. Oceanography, v.20, N 4, p.585-594.
1141. Wang S.L., Chen C.T.A. (1996). Comparison of seawater carbonate parameters in the East China Sea and the Sea of Japan. La Mer, v.34, N *, p.131-136.
1142. Watanabe T., Hanawa K., Toba Y. (1986). Analysis of year-to-year variation of water temperature along the coast of the Japan Sea. Progr. Oceanography, v.17, N 3-4, p.337-357.
1143. Watanabe Y.W., Watanabe S., Tsunogai S. (1991). Tritium in the Japan Sea and renewal time of the Japan Sea deep water. Mar.Chemistry, v.34, N 1-2, p.97-108.
1144. Winterfield T., Stommel H. (1972). Distribution of stations and properties at standard depth in the Kuroshio area. In: Stommel H., Yoshida K.(eds.) The Kuroshio. Its Physical Aspects. Tokyo, Tokyo Univ. Press, p.81-93.
1145. Wust G. (1936). Kuroshio and Gulfstream. Berlin, Berlin Univ., N 29, 69 pp., Ger.

# Y

1146. Yakovleva A.F., Rudneva O.M., Sklyarova E.D. (1955*). ATLAS OF WAVES AND WINDS OF THE JAPAN SEA*. Moscow, Hydrometizdat, * pp., Russ.
1147. Yakunin L.P. (1975). To the basis of water transport of Amur river by new channel. Trudy DVNIGMI, N 55, p.61-65.
1148. Yakunin L.P. (1987*). ATLAS OF ICE IN FAR EASTERN SEAS OF USSR*. Vladivostok, 79 pp., Russ. [*10-days schemes of probability of the meeting with ice fields were given for Tartar Strait and Peter the Great Bay*.]
1149. Yakunin L.P. (1989). On the water masses of the Japan Sea. Abst.Int.Conf.on the of the Japan and Okhotsk Seas. Nakhodka, p.12-13. [*Four main water masses were identified using an unknown data base: Surface (TS-indices: 14.5°C, 32.5‰), Surface Pacific (26°C, 33.95‰), Intermediate Pacific (14.5°C, 34.66‰) and Deep (0.13°C, 34.08‰).*]

1150. Yakunin L.P. (1996). Ice drift and thickness in the Sea of Japan. Proc.Fourth CREAMS Workshop, Vladivostok, p.203-205.
1151. Yakunin L.P. (1996). Influence of ice production on the deep water formation in the Japan Sea. Proc.PICES Workshop on the Okhotsk Sea and adjacent areas, p.215-217.
1152. Yamaguchi M., Hatada Y., Ohfuku M., Nishioka K., Hioki T. (1993). Appliance of the system of long-term calculations of wind waves for the estimation of wave climate on the Japan Sea shore. Mem. Fac. Engineer., Ehime University, v.12, N 4, p.173-184, Jap.
1153. Yamamoto K. (1968). The total and organic phosphorous in the Japan Sea. The Oceanogr. Magazine, v.20, N 1, p.39-50.
1154. Yamanaka I. (1951). On the hydrographical condition of the Japan Sea in spring and summer 1949. Part 1. J. Oceanogr. Soc. Japan, v.6,N 3, p.143-149, Jap.
1155. Yamanaka I. (1951). On the hydrographical condition of the Japan Sea in spring and summer 1949. Part 2. J. Oceanogr. Soc. Japan, v.6, N 3, p.150-156, Jap.
1156. Yamanaka I. (1953). On the hydrographical conditions of the Sea of Japan in spring and summer 1949. Rec. Oceanogr.Works in Japan, v.1, N 1, p.77-80,jap.
1157. Yamasaki S. (1969). About the bottom cold water. B. Japanese Soc. Fish. Oceanography, v.14, p.93-101, Jap.
1158. Yamashita F.,Hanawa K. (1984). Structure of horizontal turbulence in the Japan Sea. In: Ichiye T.(ed.) Ocean Hydrodynamics in the Japan and East China Seas. Tokyo, Elsevier, p.317-332.
1159. Yamazaki U. (1960). Long-term fluctuations of the temperature of Hokkaido adjacent waters. 1. Summer water temperature off Hokkaido coast in the Japan Sea side. Hokkaido Fish. Res. Monthly, v.17, N 8, p.303-307, Jap.
1160. Yanagi T. (1991). Shelf waves from the Korean coast to the Japanese coast. Proc. Symp. on the Sea between Korea and Japan. Seoul, p.1-4.
1161. Yang H.S., Kimp.J., Lee J.C., Moon C.H. (1994). Origin of the cold water below 10 C occuring in the southern coastal region of the Korean East Sea in summer by Ra isotope distribution. B. Korean Fish. Society, v.27, N 4, p.404-412, Kor.
1162. Yang H.S., Kim S.S., Kang C.G., Cho K.D. (1991). A study on sea water and ocean current in the sea adjacent to Korea peninsula. 3.Chemical characteristics of water masses in the Polar front area of the central Korean East Sea. B. Korean Fish. Society, v.24, N 3, p.185-192, Kor.
1163. Yang H.S., Kim S.S., Lee J.C. (1995). Effect of eddy on the cycle of 210 Po and 234Th in the central region of Korean East Sea. J. Korean Soc. Oceanography, v.30, N 4, p.279-287.
1164. Yang H.S., Kwon Y.A., Kim G.B., Kim S.S. (1992). Distributions of 226Ra and 228Ra in the surface waters of East Sea of Korea. B. Korean Fish. Society, v.25, N 5, p.399-405, Kor.
1165. Yang H.S., Moon C.H., Oh S.J., Lee H.P. (1997). Regeneration processes of nutrients in the Polar front area of the East Sea. 2. Distribution of particulate organic carbon and nitrogen in winter, 1995. J. Korean Fish. Society, v. 30, N 3, p.442-450, Kor.
1166. Yang H.S., Oh S.J., Lee H.P., Moon C.H., Han M.S., Kim B.K. (1998). Distribution of particulate organic matter in the Gampo upwelling area of the southwestern East Sea. J. Korean Soc. Oceanography, v.33, N 4, p.157-167.
1167. Yankovskaya A.I. (1937). Zooplankton and nutrition of iwasi in the North-Western Japan Sea. Herald of Far Eastern Branch, USSR Academy of Sciences, N 27, p.63-84, Russ.
1168. Yano Y. (1992). The Tsushima Current and the meteorological disturbance. Umi to sora, v.67, Spec.N, p.253-260, Jap.
1169. Yano Y. (1992). Tsushima Current generated by moving deformations of sea surface. Rep. Hydrogr. Research, v.28, p.293-298, Jap.
1170. Yarichin V.G. (1980). Condition of the study of the Japan Sea water circulation. Trudy DVNIGMI, N 80, p.46-61, Russ. [*A review of investigations of the Japan Sea currents was*

*based on 93 papers, including 66 Russian ones. Very simplified in comparison with known (Uda, 1952) scheme of water circulation was proposed. It was composed from some different (summer versus winter) schemes (Uda's one was repeated twice) but it includes new elements: cyclonic eddies in Korean Bay and in the northern Tartar Strait.*

1171. Yarichin V.G. (1982). Some pecularities of horizontal movement of water of the Japan Sea northward of 40 N. Trudy DVNIGMI, N 96, p.111-120, Russ. [*Current measurement data (1976-1978 mainly) with duration less than 7 days on 110 stations located northward of 40°N were analysed. Stable currents were observed along Primorye and off SW Sakhalin. Maximal velocities (up to 45 cm/s) were found near LaPerouse Strait and at the southern Primorye shelf (about 30 cm/s). Maximal velocity of Tsushima Current was observed on 50m, Primorye Current - on 100m levels. Main conclusion: these two Currents are separated by zones of divergence and convergence. The northern part of Liman Current was proposed to be called the "Schrenk Current".*]
1172. Yarichin V.G., Pokudov V.V. (1982). A formation of structure peculiarities of hydrophysical fields in the northern deep-water part of the Japan Sea. Trudy DVNIGMI, N 96, p.86-95, Russ. [*Yarichin's (1982) scheme of the Japan Sea circulation was discussed. Consequence of vergent zones should be two circulation cells with horizontal axises.Upwelling was shown below 100 m between Primorye and Hokkaido.*]
1173. Yarichin V.G., Pokudov V.V., Yurasov G.I. (1996). Unsolved problems of oceanography and hydrochemistry of water in the Japan and Okhotsk Seas. Vestnik DVO RAN, N 3, p.107-109.
1174. Yarichin V., Ryabov O. (1994). Current field structure of the Japan Sea in February-March 1990. Proc. CREAMS'94 Symp., Fukuoka, p.99-101.
1175. Yasui M., Yasuoka T., Tanioka K., Shiota O. (1967). Oceanographic studies of the Japan Sea. 1. Water characteristics. The Oceanogr. Magazine, v.19, N 2, p.177-192.
1176. Yasui Z., Hata K. (1960). On the seasonal variations of the sea conditions in the Tsugaru Warm Current region. Mem. Kobe Mar. Observatory, v.14, p.3-12.
1177. Yi S.U. (1966). Seasonal and secular variations of the water volume transport across the Korea Strait. J. Oceanol. Soc. Korea, v.1, N 1-2, p.7-13.
1178. Yi S.U. (1967). On the variations of monthly mean sea levels along the coast of Korea. J. Oceanol. Soc. Korea, v.2, N 1-2, p.24-33, Kor.
1179. Yi S.U. (1970). Variations of oceanic condition and mean sea level in the Korea Strait. In: Marr J.C.(ed.) The Kuroshio. A Symposium on the Japan Current. Honolulu, East-West Center Press., p.125-141.
1180. Yoon J.H. (1982). Numerical experiment on the circulation in the Japan Sea. Part 1. Formation of the East Korean Warm Current. J. Oceanogr. Soc. Japan, v.38, N 2, p.43-51.
1181. Yoon J.H. (1982). Numerical experiment on the circulation in the Japan Sea. Part 2. Influence of the seasonal variations of atmospheric conditions on the Tsushima Current. J. Oceanogr. Soc. Japan, v.38, N 2, p.81-94.
1182. Yoon J.H. (1982). Numerical experiment on the circulation in the Japan Sea. Part 3. Mechanism of near-shore branching of the Tsushima Current. J. Oceanogr. Soc. Japan, v.38, N 3, p.125-130.
1183. Yoon J.H. (1985). Surface water circulation of the Japan Sea. Kaye Kagaku, v.17, N 10, p.60-63, Jap.
1184. Yoon J.H. (1991). The branching of the Tsushima Current. Rep. RIAM, Kyushu University, v.38, N 108, p.1-21.
1185. Yoon J.H. (1991). The seasonal variation of the East Korean Warm Current. Rep. RIAM, Kyushu University, v.38, N 108, p.23-36.
1186. Yoon J.H., Hase H. (1997). The current structure of the south-western region of the Japan/East Sea. Proc.Int.Symposium "Tsushima Warm Current", Pusan, p.39-44.

1187. Yoon J.H., Suginohara N. (1977). Behavier of warm water flowing into a cold ocean. J. Oceanogr. Soc. Japan, v.33, N 5, p.272-282.
1188. Yoon Q.Y.,Oh Y.K.,Shoi S.H., Shon J.K. (1990). Seasonal variation of salinity in the adjacent seas of Korea. B. Nat. Fish. Res. Develop. Agency, N 44, p.27-35.
1189. Yoshida K., Shimizu Y. (1972). Bibliography of studies on Kuroshio. In: Stommel H., Yoshida K.(eds.) The Kuroshio. Its Physical Aspects. Tokyo, Tokyo Univ. Press, p.441-517.
1190. You K.W., Oh I.S. (1993). An effect of the eddy intrusive transport variations across the shelfbreak on the Korea Strait and the Yellow Sea. Part 1. Barotropic model study. J. Oceanol. Soc. Korea, v.28, N 4, p.281-291.
1191. Youn Q.Y., Oh Y.K., Choi S.H., Shon J.K. (1990). Seasonal variation of salinity in the adjacent seas of Korea. B. Natl. Fish. Res. Agency, N 44, p.27-35, Kor.
1192. Yun J.H., Kang S.K.,Cho K.D., Moon C.H. (1992). On the bottom water in the West Channel of the Korea Strait. 1. The inflow path of the bottom cold water. B. Korean Fish. Society, v.25, N 1, p.1-14.
1193. Yurasov G.I. (1977). Seasonal variations of the Japan Sea water temperature. In: Investigations of oceanographic fields of the Indian and Pacific Oceans, Vladivostok, p.62-69, Russ.
1194. Yurasov G.I. (1978). Diagnostic calculations of currents in the Japan Sea. In: Hydrophysical investigations in the North-Western Pacific. Vladivostok, p.85-100, Russ. -
1195. Yurasov G.I. (1979). Investigation of three-dimensional water circulation in the Japan Sea by numerical methods. In: Hydrophysical investigations in the Northern Pacific and Far Eastern Seas, Vladivostok, p.83-97, Russ. [*Diagnostic current calculation at 0.5 x 0.5 degree mesh for two months-February and August were made on model of integral circulation. Simple bottom relief and air pressure maps together with density and inflow-outflow through main straits were used. Density was calculated by surface temperature and salinity. Method of data interpolation was described, but the list of data or any information on data distribution or figures of salinity or density fields in both monthes are absent. Probably simplified scheme of surface water circulation and absence of East Korea Warm current in a summer are due to poor data distribution.*
1196. Yurasov G.I. (1987). On water exchange calculation through straits of the Japan Sea. Meteorologiya i Gidrologiya, N 8, p.116-118, Russ.
1197. Yurasov G.I., Yarichin V.G. (1991). Currents of the Japan Sea. Vladivostok, 176 pp., Russ. [*Monograph consists of 3 parts: a review, analyses of short term current measurements, and description of diagnostical calculation of currents. A review is almost the same as Yarichin (1980). Description of calculated currents was the same in Yurasov's papers (1978,1979). The most interesting part was devoted to current measurements. For data analyses were used 133 stations (1925-1967) with duration less 3 days, 36 Russian (1947-1979) and 15 Japanese stations (1923-1933) with duration 4-15 days. At the stations were picked out constant current velocities and they were interpolated in small size mesh. The result was a proposed scheme of water circulation. Averaged velocities were calculated: Tsushima Current- 40-50 cm/s, Primorye Current- 30-40 cm/s, Sakhalin Current- 30-45 cm/s. Charts of tidal currents have been drawn for Tartar and Tsushima Straits. Semi-diurnal tide (M2) dominates in both areas, maximal tidal current velocities are 50 and 25 cm/s consequently.*
1198. Yuuki Y. (1985). Spawning and grows of *Watasenia scintillans* in the southwestern Japan Sea. B. Japanese Soc. Fish. Oceanography, N 49, p.1-6, Jap.

# Z

1199. Zadorina L.G. (1980). Some aspects of dynamics of silver smelt abundance in Peter the Great Bay. Izvestiya TINRO, v.104, p.105-108, Russ.

1200. Zelen'ko A.A., Resnyanskii Yu.D. (1996). The seasonal variability of the hydrological fields in a numerical model of the Japan Sea. Proc. Fourth CREAMS Workshop. Vladivostok, p.143-146.
1201. Zenkevich L.A. (1951). Our Far Eastern Seas. In: Seas of USSR, Their Fauna and Flora. Moscow, Uchpedgiz, p.338-360, Russ.
1202. Zenkevich L.A. (1963). The Japan Sea. In: Biology of the USSR Seas. Moscow, Nauka, p.576-600.
1203. Zenkevich N.L. (1961). Relief of the bottom. In: Stepanov V.N.(ed.) Basic Features of Geology and Hydrology of the Japan Sea. Moscow, USSR Academy of Sciences Publ. House, p.5-22, Russ.
1204. Zernova V.V. (1980). Some regularity of phytoplankton distribution in the Japan Sea and adjacent areas of Pacific ocean. In: Investigations of the Japan Sea Plankton. Moscow, IOAN, p.15-28, Russ.
1205. Zernova V.V., Barash M.S., Os'kina N.S. (1980). New data on distribution of planktonic foraminifera in the Japan Sea and adjacent areas of Pacific ocean. In: Investigations of the Japan Sea Plankton. Moscow, IOAN, p.65-80, Russ.
1206. Zhabin I.A., Gramm-Osipova O.L., Yurasov G.I. (1993). Wind upwelling at NW coast of the Japan Sea. Meteorologiya i Gidrologiya, N 10, p.82-86, Russ.
1207. Zhabin I.A., Zuenko Yu.I., Demina T.V. (1992). Surface thermal fronts in the northern part of the Japan Sea: nature, variability, influence on fishery. In: Moroz I.F.(ed.) Oceanographical basis of Biological Productivity of the North-Western Pacific. Vladivostok, p.157-167, Russ. [*The occurrence of advective - intrusion (in the eastern Tartar Strait), tidal (on Primorye shelf and in La Perouse Strait), upwelling (in the western part of the East/Japan Sea) and coastal (in the Peter the Great Bay) surface thermal fronts during summer- autumn are investigated on the base of observations. Their nature is described by the analysis of vertical water structure on the cross-frontal sections. Some applications of phenomena to fisheries are discussed.*]
1208. Zhdanko M.E. (1903). Hydrographical works of Russian seamen in the Pacific ocean. Notes of Society of Amurskii krai investigation, v.9, N 2, p.1-25, Russ.
1209. Zhdanko M.K. (1913). On the problem of investigation of sea currents. Zapiski po Gidrographii, v.36, p.97-108, Russ. [*Schemes of prospective drift of bottles in 1907-1912.*]
1210. Zibold *.(1832). Sakhalin and Amur estuary by maps of Mogami Tokunai and Mamiya Rinzo. Leiden, * part 7, table 25, ger.
1211. Zuenko Yu.I. (1987). On temperature variability of the Japan Sea deep waters. Abstracts of TINRO Conference, p.36, Russ.
1212. Zuenko Yu.I. (1989). The bottom water of the Japan Sea formation at the Primorye shelf. Abstracts of Reports of Int.Conf.on the Japan and Okhotsk Seas, Nakhodka, p.14, Russ. [*Cold (-2 –1°C) and salty (34.0-34.5‰) Bottom Shelf water mass (BS) spreading on the shelf of Primorye is considered by the last 3 decades data. It forms during freezing in inner part of the shelf and reachs the shelf edge in few usual areas (never northward of 45°N). In the mid 1980s were the times of the widest spreading of BS, but it doesn't achieve the shelf edge in any place in 1973, 1975, 1976, 1981. BS is proposed to be a source of the Bottom Water of the East/Japan Sea (it wasn't renewed in 1970 - early 1980s). The last can be the mixture of BS and the Japan Sea Proper Water with ratio 1:8.*]
1213. Zuenko Yu.I. (1989). An analisis of seasonal variations of surface temperature in the Japan Sea for heat advection approximation. Trudy DVNIGMI, N 39, p.114-121, Russ. [*Structure of sea surface temperature frequency distribution on the Japan Sea area is considered by 10-days averaged merchant vessels data obtained in 1985-1986. Seven persistent areas of quasi-homogeneous SST are defined. Three warmest of them dominate in summer and are identificated as subtropical water masses, the three coldest ones- in winter and are*

*identificated as subarctic water masses. The total area of subtropical waters was more in 1986 than in 1985.*]

1214. Zuenko Yu.I. (1992). Tidal mixing as factor of biological productivity of the Far-Eastern Seas in summer season. In: Moroz I.F.(ed.) Oceanographical basis of Biological Productivity of the North-Western Pacific. Vladivostok, p.56-79, Russ. [*The influence of tidal mixing on temperature, salinity and plankton communities productivity in the subarctic of Far-Eastern Seas (Japan, Okhotsk, Bering and a part of the Pacific off Kuril Islands) is considered. Almost every zone of tidal mixing is distinguished by the heightened productivity. It is explained with high phytoplankton biomass and its high percentage in the samples obtained in the zones of tidal mixing.*]
1215. Zuenko Yu.I. (1992). High production of the tidal mixing zones on Japan Sea. Proc. PORCES-92 Conf., Okinawa, v.2, p.1016-1021.
1216. Zuenko Yu.I. (1993). Thermical structure of the Primorye shelf waters. In : Geographical Investigations of the Shelf of Far Eastern Seas. Vladivostok, Far Eastern State University, p.62-71, Russ.
1217. Zuenko Yu.I. (1994). The year-to-year temperature variation of the main water masses in the North-Western Japan Sea. Proc. CREAMS'94 Symp., Fukuoka, p.115-119.
1218. Zuenko Yu.I. (1994). Interannual temperature changes in the upper layer of the Japan Sea Proper Water. In: Comprehensive Study of Marine Organisms and the Conditions of Their Existence. Vladivostok, TINRO, p.66-72, Russ.
1219. Zuenko Yu.I. (1994). Cold subsurface layer in the Japan Sea. In: Comprehensive Study of Marine Organisms and the Conditions of Their Existence. Vladivostok, TINRO, p.40-45, Russ.
1220. Zuenko Yu.I. (1994). Types of water thermal stratification on the shelf of the Primorye (Japan Sea). In: Comprehensive Study of Marine Organisms and the Conditions of Their Existence. Vladivostok, TINRO, p.20-39, Russ.
1221. Zuenko Yu.I. (1996). Seasonal shift of Polar front in the western Japan Sea and its year-to-year variations. Proc. Fourth CREAMS Workshop, Vladivostok, p.89-93.
1222. Zuenko Yu., Glebova S., Nikitin A., Novikov Yu. (1997). Polar front meandering and variability in the north-western Japan Sea. Proc.Int.Symposium "Tsushima Warm Current", Pusan, p.139-145.
1223. Zuenko Y.I., Yurasov G.I. (1995). Water masses of the north-western Japan Sea. Meteorologiya i Gidrologiya, N 8, p.50-57, Russ.
1224. Zuev A. (1887). Observations of water temperature in the northern Japan Sea. Zapiski po Gidrographii, N 2, p.53-59, Russ.

# AUTHOR LIST

*Note that some errors in names are possible. Different names of the same scientists exist sometimes (for example,Oshima-Ohshima, Ohkubo-Okubo, Pavlova-Sizova). All names of Korean oceanographers are given without '-' between first and second names.*

## A



## B



## C

## D



## E



## F



## G

## H



## I

## J



## K

## L

## M

## N



## O

## P



## R



## S

## T

## U



## V



## W

## Y



## Z

## TRANSLATION OF NAMES OF SOME RUSSIAN JOURNALS

Biologiya Morya- Marine Biology
Doklady Akademii Nauk- Reports of USSR Academy of Sciences
Izvestiya GOIN- News of State Hydrological Institute
Izvestiya TINRO- News of Pacific Institute of Fisheries and Oceanography
Izvestiya Akademii nauk- Transactions of. USSR Academy of Science, ser. Geophysics
Kaye Kagaku- Marine Science monthly
Meteorologiya i Gidrologiya- Meteorology and Hydrology
Morskoi Gidrophizicheskii. Zhurnal- Marine Hydrophysical Journal
Morskoi Sbornik- Navy Collection
Pogoda- Weather
Trudy DGY – Works of Far Eastern State University
Trudy DVNIGMI- Far Eastern Regional Hydrometeorological Research Institute Works
Trudy Geogr. Obschestva- Works of USSR Geographical. Society
Trudy Gigrometcentra- Works of USSR Hydrometeorological Center
Trudy GOIN- Works of State Oceanographical Institute
Trudy IOAN- Works of P.P.SHIRSHOV Institute of Oceanology
Trudy NIIAK- Works of USSR Research.Institute of Air-Climatology
Trudy TSIP- Works of Central Institute of Weather Forecasts
Trudy VNIRO- Works of USSR Research Institute of Fisheries and Oceanography
Trudy Zoologich. Instituta -Works of Zoological Institute
Vestnik DVF(or DVO)- Herald of Far Eastern Branch of USSR Academy of Sciences
Vestnik LGU- Herald of Leningrad State University, ser.Geology & Geography
Zapiski Akademii nauk– Notes of USSR Academy of Sciences
Zapiski Obschestva Izucheniya Amurskogo kraya- Notes of Society of Amur kray Study

# MAIN INSTITUTES AND AUTHORS WHO HAVE BEEN INVOLVED WITH JAPAN/EAST SEA OCEANOGRAPHY

## CANADA

*Fisheries and Oceans Canada, Institute of Ocean Sciences*
Sidney, B.C.
G. HOLLOWAY, T. SOU, M. EBY

## CHINA

*First Institute of Oceanography, State Oceanic Administration*
Qingdao
S. PU

## JAPAN

*Abashiri Fisheries Experimental Station*
Abashiri, Hokkaido
T. MINODA

*Asia Air Survey Co., Ltd*.
Atsugi-city, Kanagawa
Y. HATAKEYAMA

*Chugoku National Ind.Research Institute, Marine Environmental Science and Technical Division*
Kure, Hiroshima

*Environmental Consultant for Ocean and Human Co., Ltd*.
Tokyo
M. MIHARA

*Ehime University, Dept. of Civic and Ocean Engineering*
Matsuyama
Y. ISODA, M. NISHIHARA

*Fukuoka Prefectural Buzen Fisheries Experimental Station*
Fukuoka
T. MIITA, S. TAWARA

*Fuyo Ocean Development & Engineering Co., Ltd*.
Tokyo
H. OOMURA

*Geological Survey of Japan, Marine Geology Dept*.
Tsukuba
K. IKEHARA, H. KATAYAMA, T. NAKAJIMA

*Govermental Industrial Research Institute*
Kure
T. FUJIWARA

*Hakodate Marine Observatory*
Hakodate
K. HATA

*Hiroshima University, Dept. Environmental Science, Faculty of Engineering*
Hiroshima
A. KANEKO

*Hokkaido Regional Fisheries Research Institute (Laboratory), Fisheries Oceanography Division*
Kushiro, Hokkaido
M. MIYAZAKI, I. BASUKAWA

*Hokkaido University, Research Institute of North Pacific Fisheries*
Hakodate, Hokkaido
A. MISUMI
*Faculty of Fisheries*
Hakodate
J. FUKUOKA, K. HARADA, Y. ISODA, K. KIDO, K. KITANI, A. MISUMI, A. MIYAZONO, M. NAKAJIMA, M. NISHIMURA, Y. NOZAKI , S. SAITO, S. TSUNIGAI, S. WATANABE, W. WATANABE

*Institute of Low Temperature Science*
Sapporo
Y. FUKAMACHI, M. WAKATSUCHI

*Imperial Fisheries Experimental Station (Institute)*
Tokyo
G. OKAMOTO, M. UDA, N. WATANABE

*Japan Fisheries Information Service Center*

Tokyo
H. TAMEISHI

*Japan Marine Science and Technology Center, Ocean Research Dept.*
Yokosuka

*Japan Meteorological Agency, Oceanogr. Div.*
Tokyo
H. AKAMATSU, Y. KANO, K. SHUTO

*Japan Oceanographic Data Center (JODC)*
Tokyo
H. NITANI

*Japan Remote Sensing Technology Center*
Tokyo
T. SUGIMURA, S. TANAKA

*Japan Sea Fisheries Research Institute (Laboratory)*
Niigata
M. HIRAI, K. KITANI, Y. KOMAKI, Y.MATSUE, K. MIYATA, Y. MORIOKA, M. MURANO, M. NAGAHARA, K. NAGANUMA, H. NAGATA, T. SHIMOMURA, T. WATANABE, H. YAMADA

*Japan Weather Assosiation, Oceanography and Marine Meteorology Division*
Tokyo
M. ICHIKAWA, K. OKADA

*Meteorological Information Center/Research Inst.*
Tokyo
S. SAITOH

*Kagawa Prefectural Goverment*
M. NISHIHARA

*Kagoshima University, Faculty of Fisheries*
Kagoshima
H. ICHIKAWA

*Kobe Marine Observatory*
Kobe
Y. HASHIMOTO, T. KAWAMOTO, H. MINAMI, K. NISHIYAMA,
*Kobe Univ. of Merchantile Marine, Dept. Nuclear Engineering*
Kobe
T. OKUBO

*Kyoto University, Institute of Fisheries*
Kyoto
H. KAWAI

*Kyushu University, Research Institute for Applied Mechanics*
Fukuoka
Y. HASHIMOTO, A. KANEKO, K. KAWATATE, C.H. KIM, T. KITA, S. MIZUNO, T. NAGAHAMA, M. SHINJIRO, M. TAKEMATSU, S. UMATANI, J.H. YOON

*Interdisciplinary Graduate School of Engineering Sciences, Earth System Science and Technology*
N. HIROSE, A. ISOBE, Z. NAGANO

*Maizuru Marine Observatory*
Maizuru
H. AKAMATSU, T. ANDOW, N. BABA, H. DAIMON, S. EBARA, Y. KANO, K. KAWAE, S. KAWAE, Y. KONISHI, H. MINAMI, T. MIYAO, K. NAKAMURA, I. NAKAYAMA, OGAWA F., K. OGAWA, M. OHWADA, O. SHIOTA, K. SHUTO, K. TANIOKA, K. YAMAMOTO, M. YASUI, T. YASUOKA

*Marine Radioecology Research Institute*
Teikokushoin bldg., 3-29, Kanda-jinpochou, Chiyoda-ku, Tokyo

*Maritime Safety Agency, Hydrographic Dept.*
Chuo-ku, Tokyo 104

*Oceanographic data and information division*
3-1 Tukiji, 5-chome, Chuo-ku, Tokyo 104
Y. NAGATA, S. SATO

*Meteorological Research Institute*
Nagamine 1-1, Tsukuba 305
J. FUKUOKA, S. MORIYASU, T. NAN'NITI, M. ENDOH

*Geochemical Research Dept.*
Nagamine 1-1, Tsukuba, Ibaraki 305
K. HIROSE, T.MIYAO

*Meteorological Satellite Center*
H. SASAKI

*Mie University, Institute of Oceanography*
1515 Kamihama, Tsu, Mie 514
Y. SEKINE, Y. NAGATA

*Nagasaki Marine Observator*
11-51 Minami-Yamate, Nagasaki 850

*Nagasaki University, Dept. Fisheries*
1-14 Bunkyo, Nagasaki 852

*National Defense Academy, Institute of Geoscience and Astronomy*
Yokosuka 239
Y. SEKINE

*National Fisheries University, Dept. Fishery Science and Technology*
2-7-1, Nagata-Honmachi, Shimonoseki 759-65,
T. SENJYU

*National Institute for Environmental Studies, Water and Soil Environment Division*
16-2 Onogawa, Tsukuba, Ibaraki-ken 305

*National Institute of Polar Research*
Kaga 1-9-10, Itabashi-ku, Tokyo 173
N. ONO

*National Research Institute of Fisheries Science*
Kachidoki 5-5-1, Chuo-ku, Tokyo 104
K.KITANI

*National Research Institute of Far Seas Fisheries, Oceanography & Southern Ocean Resources Div.*
Orido 5-7-1, Shimizu, Shizuoka 424
M. NAGANOBU

*NEC Corp., C & C Systems Res.Lab.*
Miyamae-ku, Kawasaki-shi, Kanagawa 216
S. SATO

*Ocean Development and Engineering Co., Ltd*
1-8-2 Torigoe Taitoi-ku, Tokyo 111
K.TAKANO

*SANYO Techno-Maribe Co., Ltd.*
Nihinbashi Horidome-cho, Chuo-ku, Tokyo 103
K. NUKATA, H. WATANABE

*Seikai Fisheries Research Institute (Laboratory)*
Nagasaki
O. KATOH

*Seto Marine Biological Laboratory*
Sirihama
S. NISHIMURA

*Shimane Prefectural Fisheries Experimental Station*
Hamada
T. MURAYAMA

*Shimonoseki University of Fisheries*
Shimonoseki
A. ISOBE, S. TAWARA

*Tohoku Regional Fisheries Research Laboratory(Institute)*
S. MORIWAKI, Y. OGAWA

*Tohoku University, Dept. of Geophysics (Geophysical Institute)*
Sendai
Y. KURASAWA, Y. TOBA, K. TOMIZAWA, T. WATANABE

*Dept.Astronomy and Geophisics*
K. HANAWA

*Tokai University,College of Marine Science and Technology*
M.UDA

*Tokyo University of Fisheries, Dept. Marine Sciences and Technology*
Tokyo
T. HAYASHI, K. INOUE, I. KASUGA,Y. KOIKE, Y. KURITA, M. MATSUYAMA, T. SENJYU, H. SUDO, S. TAKEDA, M. UDA, J. YOSHIDA

*Tsukuba University, Institute of Biological Science*
Tsukuba
K. TAKANO

*University of Tokyo, Geophisical Institute*
Tokyo
M. KAWABE, S. MANABE, N. SUGINOHARA, J.H. YOON

*Ocean Research Institute*
Tokyo
T. GAMO, Y. HORIBE, M. KAWABE, T. NAKAI, Y. NOZAKI, H. SAKAI, T. SUGIMOTO, H.TSUBOTA, M. TERAZAKI

*Dept. Earth and Planetary Physics*
Tokyo
T. EGAWA, Y. NAGATA

*University of Tsukuba, Institute of Biological Sciences*
Tsukuba
K. TAKANO, S. ENDO

*Yamaguchi Prefectural Open-Sea Fisheries Experimental Station*
Nagano
M. KAWANO, Y. OGAWA

**DEMOCRATIC PEOPLE'S REP. OF KOREA**

*Institute of East Sea*
Simpho
C.U. LI

*National Oceanographic Comission of the DPRK*
J.S. RIOM

*Oceanographical Dept. of Hydrometeorological State Administration*
Pyongyang
J.O. LI

**REPUBLIC OF KOREA**

*Agency for Defense Development*
Chinhae

*Cheju National University*
Cheju
S.K. YANG

*Chinhae Research Lab.*
Chinhae
T.B. SHIM

*Chung Nam National University, Dept. Oceanography*
Tae Jeon
Y.J. RO

*Hanyang University, Dept.of Earth and Marine Sciences*
Ansan
S.K. HAN, D. KANG, B.H. KIM, S.W. LEE, J.Y. NA, D.G. PAENG, J.W. SEO

*Inha University, Dept.Oceanography*
Inchon
K.J. KIM, K. KIM, S.Y. NAM, Y.H. SEUNG

*Kangnung National University, Dept. Atmospheric Science*
Kangnung, Kangwondo 210-702

*Kong Joo Teachers College*
Kong Joo
H. S. AN

*Korean Hydrographic Office*
Incheon
K.S. CHU, S.U. YI

*Korea Maritime University, Dept. Ocean Engineering*
Pusan
S.G. PARK, H.S. YU < YOO >

*Korea Naval Academy, Agency for Defence Development; Dept.Oceanography*
Chinhae
T.B. SHIM, K.S. LIM, H.S. LEE

*Korea Ocean Research & Development Institute (KORDI)*
Ansan
Phys.Oceanography Div., Chemical Oceanography Div., Biological Oceanography Div., Mar. Geology & Geophysics Div., Ocean Eng. Div.
BANG, S. K. BYUN, K.I. CHANG, C.H. CHO, J. K. CHOI, S.D. HAHN, G.H. HONG, D. JEON, K.C. JUN, S.W. KANG, D. JEON, C.H. KIM, S.I. KIM, D. Y. LEE, H.J. LIE, S.Y.

NAM, B.C. OH, K.S. PARK, J.S. SHIM, H.R. SHIN, M.S. SUK,

*Korea Ocean Science and Engineering Corp.(KOSEC)*
Seoul
T.I. KIM, S. W. LEE, H.K. SUNG,

*Meteorological Research Institute*
J.H. BONG

*Kunsan National University, Dept. Oceanography*
Kunsan

*National Fisheries University of Pusan, Dept. Oceanography*
Pusan
T.J. BANG, K.D. CHO, W. CHOI, Y.K. CHOE, H.S. CHOO, C.H. HONG, H.E. KANG, Y.Q. KANG, S.S. KIM, B.D. LEE, J.C. LEE, W.J. LEE, C.H. MOON, C.K. PARK, H.S. YANG

*Dept. Ocean Engineering*
H.J. KIM

*National Fisheries Research and Development Agency (NFRDA), Dept. Oceanography*
Pusan
Y. GONG, H.S. HAN, J.B. HEO, C.G. KANG, P.J. KIM, J.U. LEE, K.B. LIM, J.S. PARK, S.J. SON

*Korea Oceanographic Data Center*
Pusan
S.D. HAHN

*Pusan National University, Dept.Oceanography*
Pusan
S. Y. LEE,

*Dept. of Physics*
Pusan
K.B. LEE

*Pukyong National University, Korea Inter-University Institute of Ocean Science*
Pusan
K.D. CHO

*Seoul National University, Dept. Oceanography*
Seoul
Y.Ki CHO, S.H. CHOI, J.Y. CHUNG, J.S. HWANG, K. KIM , K.R. KIM, S.I. KIM, Y.G. KIM, Y.E. KIM, J.K. LEE, T.S. LEE, I.S. OH, M. S. PARK, W. PARK, T.S. RHEE,
*Dept. of Earth Sciences,*
H.S. AN, C.H. LIM, K. SHIM

*Sung Kyun Kwan University*
Suwon
Byung Ho CHOI

*Tong-Young National Fisheries Junior College*
Chungmu
Chol Hoon HONG

*Yonsei University, Dept. Astronomy and Atmospheric Sciences*
Seoul
Yign NOH

**RUSSIA**

*Central Institute of Weather Forecasts (TSIP)*
Moscow
M.G. GLAGOLEVA, M.D.KORYAKOVA, E.M. SAUSKAN,Y.A. TYUTNEV

*Far Eastern Regional Hydrometeorological Research Institute (DVNIGMI)*
Vladivostok
V.D. BUDAEVA, G.M. BIRYULIN, M.A. DANCHENKOV, P.B. FIRSOV, A. MAN'KO, V.V. POKUDOV, Z.P. REDKOVSKAYA, A. SAVELIEV, G.A. STOLYAROVA, T.I. SUPRANOVICH, A.V. TKALIN, V.P.TUNEGOLOVETS, S.M. VARLAMOV, N.A. VLASOV, L.P. YAKUNIN, V.G. YARICHIN
*Far Eastern State University(DVGU or DGU), Geophysical Dept.*
Vladivostok
E.A. IVASCHENKO, L.P. YAKUNIN

*Hydrographical Office of Russian/USSR Navy*
L.F. RUDOVITS, L.A. ZHDANKO, A.M. BATALIN, M.D. KORYAKOVA

*Institute of Air Climatology (NIIAK)*
Moscow
V.S. SAMOILENKO

*Institute of Automation and Control Processes (IAPU), Far Eastern Branch of Russian Academy of Sciences*
Vladivostok
V.G.FEDERYAKOV, I.A. GONCHARENKO, O.A. RYABOV, V.G. YARICHIN

*V.I. VERNADSKII Institute of Geochemistry and Analitical Chemistry*
Moscow
I.D.BAKANOV, A.S.BORISOV, A.M. KUDIN

*Institute of Marine Geology and Geophisics, Academy of Sciences*
Yuzhno-Sakhalinsk
A.B. RABINOVICH, R.N. MANSUROV

*Leningrad State University (LGU), Dept. Oceanography*
Leningrad (Saint-Petersberg)
A.K. LEONOV

*Moscow State University(MGU), Dept. Oceanology*
Moscow
O.I. MAMAEV

*The P.P. Shirshov Oceanological Institute (IOAN)*
Moscow
L.A. BUNIMOVICH, L.I. GALERKIN, A.N.KRYNDIN, V.V. MOKIEVSKAYA, A.G. OSTROVSKII, S.G. PANFILOVA, Yu.V. PAVLOVA (SIZOVA), L.A. PONOMAREVA, M.A. RADZIKHOVSKAYA, N.L. ZENKEVICH

*Pacific Institute of Fisheries and Oceanography or Pacific Research Fisheries Centre (TINRO)*
Vladivostok
B.S. DYAKOV, A.M. KHARCHENKO, B.M. KOZLOV, M.S. KUN, I.M. MESCHERYAKOV, A.A. NIKITIN, V.I. RACHKOV, A.I. RUMYANTSEV, V.P. SHUNTOV, A.N. WDOVIN, Y.I. ZUENKO

*Pacific Institute of Oceanography(TOI)*
Vladivostok
M.G. BIRYULINA, N.P. BULGAKOV, S.N. BULGAKOV, K.V. DUDKA, O.L. GRAMM-OSIPOVA, V.F. KOZLOV, A.Yu. LAZARYUK, V.G. MAKAROV, V.P. MAKASHIN, L.V. MIKULICH, V.I. PONOMAREV, N.I. SAVELIEVA, A.S. VASILIEV, G.I. YURASOV, I.A. ZHABIN

*Russian Geographical Society*
Vladivostok
K.A. GOMOYUNOV

*State Oceanographical Institute (GOIN)*
Moscow
N.A. BELINSKII, Y.V. ISTOSHIN, A.K. LEONOV

**UNITED STATES OF AMERICA**

*Louisiana State University, Coastal Studies Inst.*
Baton Rouge
O. K. HUH, T. SHIM

*Texas A & M University, Dept. Oceanography*
College Station
M. HOWARD, T. ICHIYE, K. RIKIISHI

*National Environmental Satellite Data and Information Service*
Washington
R. LEGECKIS

*University of Colorado, Colorado Center for Astrodynamics Research and Program in Atmospheric and Oceanic Sciences, Dept. of Aerospace Engineering Sciences*
Boulder
L.H. KANTHA

*University of Miami, Ocean Prediction Exp.Lab.*
Miami
H.S. KANG, C.N.K. MOOERS

*University of South California, Dept. Envir. Geology*
Los Angeles
R.L. KOLPACK

*Louisitana State University, Coastal Studies Institute*
Baton Rouge
W.S. CHUANG, O. K. HUH, T. SHIM, W.J. WISEMAN

*University of Washington, School of Oceanography*
Seattle
R. DRUCKER, S. MARTIN, E. MUNOZ, S.C. RISER

# HISTORY OF RUSSIAN INVESTIGATION IN THE JAPAN SEA

Russian oceanographic investigations in the JES are interesting and tragical. Because the history of Russia provided some deep breaks in the development of oceanographic science we can divide the history of regional oceanography into 4 stanzas:

- before revolution (till 1922),
- from 1923 till 1947,
- from 1948 till 1990,
- from 1991 till now.

**Before 1922**

The study of the oceanography of the JES (and of the Okhotsk Sea) was begun by Russian scientists. Until 1922 Russian investigations were dominant in this area. Japanese researches were carried out mainly to the south and east of Japan at that time. S.B. Hahn (1994) wrote: "physical oceanography in Korea has been developed since 1787". But from our point of view the oceanography in Korea began in 1921 when the first scientific organisation (Fusan Fisheries Experimental Station) was established in Pusan.

The first exploration of the geography of the Japan Sea was conducted by La Perouse in 1787, who crossed the Japan Sea, Tartar Strait, La Perouse Strait and gave their description and exact coordinates. La Perouse could not enter the strait between Sakhalin and the continent and he decided that Sakhalin must be a peninsula. The same mistake was made by Brouton and Kruzenshtern (1805). Mamiya Rinzo (Japan) described the strait between the continent and Sakhalin in 1808, but the information about it was not published until 1832 (in Germany). In Russia, the views of Laperuz and Kruzenshtern dominated until a Russian seaman Nevelskoi (1849) investigated it and provided a detailed description. Intensive investigation of the JES began from 1858 when Russia acquired the Ussuri and Amur areas.

The first publications on oceanography in the JES were made by L.I. Shrenk (1869, 1874). He identified and named the current schemes and described the peculiarities of its waters and sea habitats. Before 1880 investigations of the JES and the Pacific Ocean (Russians call it as "the East Ocean") were conducted by Russian seamen as private initiatives. In 1880 the first special Russian organisation for hydrographic investigation of the Sea- "Separate Survey of the East Ocean" was established. It worked in Peter the Great Bay until 1898 when it was re-established as the "Hydrographic Expedition of the East Ocean". It worked until revolution.

Among the numerous papers published from 1876 (by seamen mainly) are some by Baron E. Maidel (1876; 1877; 1878; 1879). He demonstrated that the Liman Current is not continuous and is not formed by the outflow of the Amur River. (Note that during the subsequent Soviet period, the investigations of S.O. Makarov (1894) that followed some time later, were cited preferentially). The papers of E. Maidel were forgotten after the revolution and the cold current in LaPerouse Strait was never investigated until recently. Maidel showed that there are two currents- a warm one in the Okhotsk Sea and a cold one in the JES. Other Russian papers also discussed the cold current in LaPerouse Strait (Zuev, 1887; Onatsevich, 1877;1878).

Investigations of sea temperature, density and currents were made not only by hydrographers (Kolchak, 1899; Zhdanko 1903; 1913), but also by a doctor (Zuev, 1887), naval officers (Anonymous, 1898) and trade navigators (Zhdanko, 1903; Sailing directions, 1912).

**Development and destruction of Soviet regional oceanography (1923-1947)**

After the establishment of Soviet authority in Russia, the continuity of studies was disrupted and scientific equipment was destroyed (Bykovskii, 1918). As it appears to us, although there is no information about it, most hydrographers (including M. Zhdanko and A. Kolchak) were killed. For a long time after the

revolution, only reviews of Japanese papers (Vize, 1923; Rudovits, 1927; 1929; 1934; Bubnov, 1939) and the generalizations of earlier works (Akhmatov, 1926; Tanfiliev, 1931) were published. Until A.K. Leonov (1948), no substantial new Russian publications on JES oceanography were produced. Japanese publications on the JES oceanography became dominant.

In the beginning some new scientific organisations were established in Vladivostok. In 1925, the Pacific Fisheries Station (now- Pacific Institute of Fisheries and Oceanography) was established, in 1931- Far Eastern Geophysical Institute (now- Far Eastern Regional Hydrometeorological Research Institute), in 1935 - Far Eastern Branch of USSR Academy of Sciences. Many scientists from the State Hydrological Institute (Leningrad) collaborated in the study of the JES. They occupied hundreds of oceanographic stations in coastal areas and in the middle of the JES. The results of investigations were published in special journals: "Izvestiya TINRO", "Bull. Pacific Committee of USSR Academy of Sciences", "Herald of Far Eastern Branch of USSR Academy of Sciences", "News of Far Eastern Geophisical Institute", "News of State Hydrological Institute" and "Works of Far Eastern State University."

There are many references to the results of Japanese expeditions in the JES in 1932 and 1933 but Soviet expeditions in 3 seas (the Bering Sea, the Okhotsk Sea and the JES) by 6 research vessels gave equally interesting results. However, in spite of unique data, the number of published papers was not very big. With the exception of a little-known atlas of sea currents (Batalin, 1941) there were no noticable publications during this period, largely because such publications were considered confidential and publication was prohibited. All oceanographic research along the coast (in Peter the Great Bay and in Tartar Strait) and research on ice distribution, sea level, analysis of current measurements were made confidental. That certainly did not raise the quality of research. In common journals, only publications on hydrobiology were noticable.

It is interesting to note that without any appreciable research, the names of currents have changed. The Liman Current came to be called the "Primorye Current" (Belinskii, Isyoshin, 1950) or the "Northern Japan Sea Current" (Leonov, 1948). The tendency to give new names ("Sakhalin Current", "South Primorye Current", "Shrenk Current" without serious investigations is also found in other works of the Soviet period (Pokudov, Tunegolovets, 1975; Yarichin, Pokudov, 1982).

The development of Russian regional oceanography was stopped very suddenly. In 1930, the campus of Pacific Institute of Fisheries and Oceanography was transferred to the Pacific Navy of USSR. In 1938-1939 the Far Eastern Branch of USSR Academy of Sciences, the Far Eastern State University, the Geophysical Institute and the departments of the State Hydrological Institute working in the JES were closed and the scientists were repressed.

**Development of regional Oceanography 1948-1990**

The number of oceanographic stations occupied in the JES by Russian vessels increased with each year. Up to 1949 only small-size vessels were used and in 1949 a large-tonnage research vessel "Vityaz" arrived, in 1959- "Voyeykov", in 1960- "Shokalskii".

Progress in regional research occurred as a result of processing data collected up to the beginning of the 1960s. Almost simultaneously three Russian monographs were published (Leonov, 1960; Main features…, 1961; Zenkevich, 1963) by authors working in Moscow and Leningrad. Although the main oceanographic institutes engaged in JES research were located in Vladivostok, there were limited possibilities to publish scientific works locally. For example, at the Far Eastern Hydrometeorological Institute, a thick book on oceanography of the JES was prepared and published (Pokudov, Supranovich, 1975), but (unlike 2 other books) it has generally been unknown to readers in Russia and abroad until now.

There was a 15-year period from 1961-1975 without Russian publications on the oceanography of the JES, even though more than 10 new large-tonnage research vessels appeared in Vladivostok from 1969 to 1972. Even with the largest scientific fleet in the world, not enough attention was given to research in the JES. The reason was largely due to a system of payment for labour where participants of expeditions working in domestic waters (without port calls in foreign ports) received smaller salaries than those working in seas far from Russia.

Since 1975 the first appreciable volume of papers on JES oceanography appeared (V.V. Pokudov 1975, 1976, 1980; V.G. Yarichin 1980, 1982a, 1982b; G.I. Yurasov 1977, 1978, 1979, 1980, 1987). But in comparison with the southern part of the JES, the northern region was investigated very poorly. An interesting monograph devoted to Russian measurements of currents and diagnostic modelling of water circulation (Yurasov, Yarichin, 1991) was published in 1993. It was prepared from material published up to 1983. For the ten years period from 1983 to 1993, the views on sea currents stated in the monograph have become outdated in many aspects.

Since 1980, under the program "Seas of USSR", extensive research of the JES (12 large-scale surveys) was carried out. Unfortunately, the value of these surveys was reduced because of poor quality salinity measurements. For example, the range of salinity values in the deep waters of the JES is thought to range between (34.05-34.07‰), yet surveys of the Soviet vessels measured smaller ( < 34.00‰) and bigger ( > 34.15‰) values. In 1975 and in 1980 2 new schemes of surface circulation were published (Pokudov, Tunegolovets, 1975; Yarichin, 1980).

In the most recent years, new Russian authors with original works on oceanography of the JES have appeared: Yu.I. Zuenko, V.I. Ponomarev and M.A. Danchenkov. In recent Russian publications some interesting features of sea water structure are described: the zone of the intensive vertical water mixing in winter; eddy streets through which warm waters are transported to Vladivostok; a north-western branch of the Subarctic (Polar) front and a branch of Tsushima Current from Hokkaido to Peter the Great Bay.