

PREFACE

The 7th Oceanography of the Japan Sea Symposium (the last in the 20th century) held in Vladivostok in May 15-16, 2000 completed the seven-year international large-scale studies of the Russian part of Japan Sea that involved multiple research institutions and organizations. Success of this study is the result of these joint efforts.

This cooperative program known as CREAMS (Circulation Research of the East Asian Marginal Seas) was realized as a sequence of joint marine expeditions and scientific conferences incorporated by the same area of research, that is the Japan Sea.

The history of CREAMS goes back to 1993, when two marine expeditions of RIAM (Research Institute of Applied Mechanics, Kyushu University, Japan) to study the seawater circulation of the Japan Sea were organized. Regular studies of currents in South-Korean and Japanese zones, however, were carried out earlier as well by Japan and the Republic of Korea within their national programs.

Characteristic feature of CREAMS program is its international orientation. All marine expeditions, mainly on board of R/V "Professor Khromov", involved specialists from oceanographic institutes of Vladivostok (Russia) and from different Universities of Japan and the Republic of Korea.

CREAMS was the first program that studied the Russian part of the Japan Sea by a dense net of oceanographic stations. Measurements made differed from the previous ones by their complex character and by the high quality of data used.

Among the people who contributed so much to the success of the program are the "CREAMS fathers" profs. J.H. Yoon and M. Takematsu from Kyushu University, prof. K. Kim from Seoul University, Dr. M.A. Danchenkov from Far Eastern Regional Hydrometeorological Research Institute (FERHRI), and Dr. G.I. Yurasov from Pacific Oceanological Institute (POI).

In fact CREAMS program was finished in 1997 when the Japan party stopped financing marine expeditions. Consequent expeditions were realized by the efforts of Russian and Korean scientists.

Since 1999 the international marine expeditions were carried out within the framework of American project on the Japan Sea, that was named CREAMS-2. Actually it was an another, independent program, whose key organizers were Prof. Stephen C. Riser from University of Washington and Prof. Lynne D. Talley from Scripps Institution of Oceanography.

Brief Historical Record of the Japan Sea Study in Russia

CREAMS program is preceded by over a hundred-year history of the Japan Sea research. Such studies were carried out within Russian, Japanese and Korean national programs.

Actually oceanographic studies of the Japan Sea waters were initiated by Russian hydrographs in the 19th century. Publications of L.I. Shrenk, E.V. Maidel, and S.O. Makarov are still important. The main currents of the Japan Sea were named by Russians oceanographers. After the socialist revolution, however, the level of oceanographic research in Russia has sharply fallen. Soviet Russia had no research vessels, skilled scientists, scientific equipment and machinery, that is why for a long time Russian oceanographers were limited by coastal water studies. Only after organization of the Pacific Scientific Fisheries Station (TONS) in 1925 in Vladivostok (later developed into TINRO) and the Far Eastern Geophysical Institute in 1931 (Dalgeophyzin, now FERHRI) Russians resumed large-scale oceanographic studies. Thus, in the 1930^s several major surveys in different seas were fulfilled. Then the fisheries station went to the newly formed Russian Pacific Navy and TONS practically stopped its oceanographic researches. Reorganization of Dalgeophyzin also impacted research activity. Actually the Far Eastern seas were studied by visiting scientists from Moscow and Leningrad. This resulted in the delay in publication of papers on the Japan Sea oceanography. Thus, the results obtained in the pre-war period were published only after the World War II (A.K. Leonov, published in the 1940-50^s). They, however, served as the basis for the first Russian monograph on the Japan and Okhotsk Seas oceanography (A.K. Leonov, Regional oceanography, 1960).

In 1949 R/V "Vityaz" came to Vladivostok. This enabled the scientists of the Institute of Oceanology of the USSR Academy of Sciences to carry out several large-scale surveys in the Japan Sea and to publish in 1961 a book on oceanography and geology of the Japan Sea.

Late in the 1950^s the basic oceanographic institute of Russia in the Pacific, FERHRI (re-organized in 1950), received two big research vessels, and late in the 1960^s and early in the 1970^s another seven research vessels. Oceanographic fleet of FERHRI ranked the largest in the world and made up 10 vessels. But until 1980 the works in the Japan Sea were just episodic. The program “The Seas of the USSR” that covered the period of 1980-1990 put the researches of the Japan Sea on a regular basis and realized over ten large-scale oceanographic surveys in the Japan Sea.

As a whole the Japan Sea was covered by a dense net of oceanographic stations. These data collected are not completely analyzed even now. Thus, much of them are not published yet.

Japan Research of the Japan Sea Waters

The first large-scale Japan Sea surveys were carried out by fishery ships in 1932-1934. The data collected were analyzed and published in several papers. The most famous among them are publications of M. Uda (they are cited till now). In 1975 and 1978 in Japan the climatic atlases were issued. They are distinguished from the previously published Russian ones (1955, 1968) by their quality. The Russian part of the Japan Sea, however, was shown in white in them as Russian oceanographic data were and still are unavailable for foreign scientists.

CREAMS program was the first opportunity to receive qualitative data on the conditions of the Russian part of the Japan Sea.

Korea Research of the Japan Sea Waters

The Republic of Korea evolved into the independent country in 1945. Long after that the country was in a destructive war. Only late in the 1960^s Koreans began regular research investigations of the Japan Sea oceanography. Korean climatic atlas of the Japan Sea was published in 1988, with the Russian zone being omitted. Only CREAMS program provided for Korean scientists the opportunity to carry out regular studies of the Russian part of the Japan Sea.

Expeditions under CREAMS Program

Joint field studies of the Japan Sea waters were initiated by the first expedition of R/V “Khromov” in 1993. It was preceded by the Russia-Taiwan expedition of 1992. Totally under CREAMS program 4 summer (1993, 1994, 1995, 1996) and 4 winter (1996, 1997, 1998, 1999) expeditions were carried out. A good will was repeatedly shown by all the participants of the program.

As for the Russian party, the main problem in organizing CREAMS expeditions was insufficient financing of FERHRI, as for the Japanese (RIAM, Kyushu University) and Korean (dept. of oceanography, Seoul National University) parties, it was a weak interest of governmental organizations in cooperation with Russia.

The expedition of 1993 studied the economic zones of Russia, Japan, and the Republic of Korea. About 70 CTD stations were fulfilled, with ADCP measurements being made over 8 sections and 2 surface drifters and 3 deep buoy stations being deployed.

The expedition of 1994 studied the same economic zones. 53 CTD stations were carried out and 3 buoys were deployed.

Since 1995 the studies were not fulfilled. Winter international expeditions (starting from 1996) concentrated on the area to the south of Vladivostok.

Very much the success of all expeditions was contributed by K. Abe (RIAM, Kyushu University), T. Kita (RIAM, Kyushu University), A. Sherbinin (FERHRI), S. Yarosh (FERHRI), Y.K. Cho (Seoul National University), and Y.G. Kim (Seoul National University).



Photo 1. Prof. M. Takematsu (RIAM, left) and S. Hwang (KORDI, right) in CREAMS'93 expedition



Photo 2. K. Abe (RIAM, left), Dr. M.A. Danchenkov (FERHRI, center) and Dr. C.H. Kim (RIAM, right) in CREAMS'93 expedition



Photo 3. Group of Russian oceanographers in CREAMS'99 summer cruise

International Symposia on the Japan Sea Oceanography

The first international conference on the Japan Sea oceanography was the Symposium on the so-called “the Sea between Korea and Japan” organized by Seoul University in November, 1991. By this time Russian scientists had already taken part in oceanographic conferences. Those were the conferences discussing the Japan and East China Seas studies (organized by T. Ichiye, K. Takano and K. Kawatate). In the latter five Russian scientists participated. These meetings were a powerful impulse that stimulated Russians to study the Japan Sea.

The first CREAMS conference was organized in Fukuoka (January, 1994), it discussed the results of the first CREAMS expedition. The second meeting within CREAMS program was held in November, 1994 in Seoul, the third – in Vladivostok in 1996, the fourth and fifth – again in Fukuoka (1997, 1999). One conference was classified as Symposium, all the rest – as Workshops. Nevertheless, the circle of participants was practically the same at all the meetings. It is noteworthy that Korean (B.H. Choi, I.S. Oh, Y.K. Cho) and Japanese (Yu. Isoda, A. Isobe) scientists contributed so much to the success of CREAMS conferences.



Photo 4. Meeting of Planning Committee of CREAMS-2 in Seoul (April 28-29, 1998)

CREAMS'2000 Symposium

CREAMS Symposium held in Vladivostok in May (15-16), 2000 was attended by about 100 scientists from different countries. High-level professional papers presented at the Symposium described the oceanography of the East Asian Marginal seas and plans for the future, including exchange of data and cooperative studies.

Some episodes of the Symposium are shown in photos.



Photo 5. Dr. C.N.K. Mooers



Photo 6. Dr. V.A. Golovastov (left), Dr. A. Ostrovskii (center), Dr. V.G. Yarichin (right)



Photo 7. Dr. L.D. Talley (left), Dr. Yu.N. Volkov(center), E.E. Koltunova (right)



Photo 8. Group of participants of CREAMS'2000 Symposium

Papers on the Japan Sea Oceanography

Publications of the previous CREAMS symposia included the extended (up to 4 pages) abstracts. This book is the first attempt to publish full-length papers on the Japan Sea oceanography. The Asian part of Russia (here the main oceanographic institutions are located) has no oceanographic journal, thus, it is an opportunity to publish the recent oceanographic results of Russian scientists.

The book, however, is not a complete collection of the reports made at the Symposium. The papers are not uniform in volume, language, and level. Part of the published materials (mostly by foreign authors) are just the extended abstracts.

We are grateful to all the authors and reviewers who contributed to the quality of the book. Special recognition is expressed to organizations that helped the Symposium and this book became a reality. We also appreciate our interpreters E.E. Koltunova and E.S. Borozdinova who assisted in holding the Symposium and preparing the proceedings. The financial and moral support of PICES and University of Washington are gratefully acknowledged.

Last Word

Despite CREAMS program has been successfully completed, we hope it will be enlivened to provide another opportunity for the scientists to cooperate and to study the Sea of Japan together.

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